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ABSTRACT

An overview is presented of the background and proceedings of a conference planned to share information on dissemination and utilization research conducted by National Institute of Education sponsored projects in educational laboratories and R&D centers in order to form a community among those who share similar research objectives and problems. Included in the report are papers prepared by participating projects and commentaries by conference consultants. The papers describe the background, research approach, problems, and issues of each project. The individual papers focus on topics such as urban education programs and research planning, teachers centers exchange, school-based interactive research, school improvement processes, bilingual education, and individualized schooling. A listing of projects and labs/centers is also provided. (DS)

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Educational Dissemination Systems Support Program

REPORT AND COMMENTARY ON THE CONFERENCE ON RESEARCH ON EDUCATIONAL DISSEMINATION AND UTILIZATION

Edited by

Carolyn S. Cates

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REPORT AND COMMENTARY ON THE

CONFERENCE ON RESEARCH ON EDUCATIONAL DISSEMINATION AND UTILIZATION

October 4-6, 1978

Austin, Texas

Sponsored by:

The National Institute of Education

The Research and Development Center for Teacher Education,
The University of Texas at Austin

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ABSTRACT

This report provides an overview of the background and proceedings of the Conference on Research on Educational Dissemination and Utilization which was jointly sponsored by the National Institute of Education, the Research and Development Center for Teacher Education at the University of Texas at Austin, and the Far West Laboratory for Educational Research and Development. The purpose of the conference was to share information on D&U research being conducted by NIE-sponsored projects in educational laboratories and R&D centers in order to form a community among those who share similar research objectives and problems.

Included in the report are papers prepared by participating projects and commentaries by conference consultants Carnot Nelson and Michael Fullan. The project papers describe the background, research approach, problems, and issues of each project. Nelson's commentary suggests a preliminary categorization of projects according to the focus of research, type of knowledge to be disseminated and/or used, source of knowledge to be disseminated, and methods employed in the research. Fullan's commentary provides analysis of the project papers and conference discussions, issues regarding interaction at the conference, and recommendations for topics and issues to be considered in future meetings.

REPORT AND COMMENTARY ON THE CONFERENCE ON RESEARCH ON EDUCATIONAL DISSEMINATION AND UTILIZATION

Overview of Conference Background and Proceedings

The Conference on Research on Educational Dissemination and Utilization was sponsored jointly by the Program on Research and Educational Practice of the National Institute of Education, the Project on Procedures for Adopting Educational Innovations of The Research and Development Center for Teacher Education at the University of Texcas at Austin, and the Educational Dissemination Systems Support Program of the Far West Laboratory for Educational Research and Development. Impetus for the conference came from the realization by NIE staff and NIE-sponsored D&U researchers that, although persons in numerous NIE-sponsored projects and programs in Educational Laboratories and R&D Centers were conducting research on D&U few knew in any depth what others were doing. At an informal meeting during the 1978 AERA Annual Meeting, individuals from NIE, Research for Better Schools, Learning Research and Development Center, University of Texas Research and Development Center for Teacher Education, and Southwest Regional Educational Laboratory resolved to change that state of affairs through a small scale conference of D&U researchers. An ad hoc planning committee appointed from that group--Ralph Hanson (SWRL), Paul Hood (FWL) Susan Loucks (UTR&DC), Ward Mason (NIE), Carnot Nelson (University of South Florida)--outlined the objectives and format for the conference. The conference agenda is included in Appendix A.

The primary objective of the conference was to share information on D&U research that is occurring across the laboratories and centers in order to form a community among those who share similar research objectives and problems. The potential outcome of such sharing might lead to progress in solving some problems and increasing cooperation among laboratories and centers. Another immediate objective was to determine whether future sharing within a group such as this would be desirable, and if so, what the format and objectives for such sharing should be. A potentially longer range objective was to identify gaps in present D&U research in order to suggest some future research agenda items.

NIE staff identified 21 D&U research projects in 13 laboratories and centers. Invitations were sent to each project. Twenty-two laboratory and center participants representing 13 projects attended. The laboratory and center projects conducting research on D&U and the conference participants are listed in Appendix B. The NIE Program on Research and Educational Practice was represented by Ward Mason and Rolf Lehming. Also participating were three consultants from outside the laboratories and centers: Matthew Miles served as process facilitator; Michael Fullan and Carnot Nelson provided analysis and synthesis of cross-cutting issues raised in conference discussions.

Each participating project or program was asked to prepare a brief paper for advance distribution to other participants. Each paper addressed four areas of the present research:

- Background. Previous work from which the project emanates. Context in which the research takes place. Relationship to other projects in this project's laboratory/center.

- Approach. Research questions or objectives. Methodology(ies) being used. Conceptual base. Theory or model employed, adapted, anticipated.
- Problems. In specifying questions. Designing methodology. Working with the field. Disseminating results.
- Issues. Methodological. Ethical. Communication. Semantic. Other.

The papers (in Appendix C) served as the starting point for discussions in the first large group meeting. The focus of the first session was on identifying concerns which might be pursued further in small group sessions. Illustrative of the concerns raised are these problems and issues:

Outcomes of Innovation Implementation

- Need to establish a taxonomy of outcomes
- Difficulty and complexity of associating learning outcomes with dissemination and utilization
- Need to assess innovation impact beyond product/process objectives
- Need to examine the continuing effects of complex innovations.

Methodology

- Need for multiple disciplines/perspectives to address complexity in D&U research
- Need to improve methods for integrating qualitative and quantitative approaches to research
- Need to develop taxonomies of interventions/innovations

- Problems of identifying and evaluating the relative effects and interactions of variables that affect the processes and outcomes of D&U

Ethics

- Conflict between premature release of information (especially politically unpopular findings) and making available information/findings which may help correct problem situations
- Need to develop better strategies for validity and quality control
- Confidentiality versus access to information.

From these and other concerns expressed, the following topics were selected for small group discussions on the afternoon of the first meeting day and the morning of the second meeting day:

- Language and logic of D&U research
- Problems in qualitative methodology
- Problems in participatory research
- Ethics--especially in participatory and qualitative research
- Characteristics of innovations
- Problems in research on networks
- Strategies and variables affecting implementation
- Problems in knowledge transformation
- Problems in integrating and balancing service to clients and research.

In the final session of the large group, Michael Fullan and Carnot Nelson provided analyses of both the process and substance of conference

discussion and made some recommendations about alternative approaches to future discussions. Their comments are presented in the two following sections. In addition, preliminary plans were made to hold a follow-up meeting immediately preceding the 1979 AERA Annual Meeting in San Francisco. The general consensus was to structure discussions around some of the issues and problems raised at the Austin meeting. Selected topics will be addressed in brief working papers to be circulated to participants prior to the San Francisco meeting. The Austin Conference planning committee was reappointed to arrange for the follow-up meeting. The planning committee will consult with participants about selection of discussion topics and preparation of working papers.

RESEARCH ON DISSEMINATION AND UTILIZATION: WHAT ARE THE REGIONAL LABORATORIES AND RESEARCH AND DEVELOPMENT CENTERS DOING?

Carnot E. Nelson
University of South Florida

As evidenced by the number of persons attending this conference and the number of regional educational laboratories and research and development centers represented, there is a great deal of research presently being conducted on dissemination and utilization. However, dissemination and utilization covers a wide area of study which can be examined using multiplicity of techniques and approaches. Dissemination, as indicated by the definition proposed by the Dissemination Analysis Group, involves four different levels of activities ranging from the spread of information to the provision of technical assistance in the implementation of new programs (DAG, 1977). In addition, a wide variety of research techniques have been used to study these phenomena, ranging from surveys to ethnographic observations.

Given the breadth of both the subject matter we are discussing and the methods and the approaches used to study this material, it appears important to try to categorize the various activities which are being undertaken. Such a categorization can serve two functions: (1) it can point out the similarities and differences between the various projects, and (2) it can serve to establish the areas in which no research is being conducted.

The purpose of this paper is to attempt to categorize the types of research being conducted by the laboratories and centers based upon the

following conceptual schema and the papers presented by each of the projects at this conference.

A. CONCEPTUAL SCHEMA*

Our conceptual schema is based upon describing each of the projects in terms of answers to the following four questions. The questions are:

- What is the focus of the research?
- What type of knowledge is to be disseminated or used?
- What is the source of the knowledge to be disseminated?
- What methods are being used in the research?

Focus of research describes the portion of the knowledge production and utilization process that the project is studying. Shown in Table 1 on the following page are the various aspects of the knowledge production and utilization process with which a project could be concerned.

The form of knowledge to be disseminated is concerned with the nature of the message being disseminated. The types of knowledge that can be disseminated and utilized in education range from an idea to a complex set of curriculum materials and new pedagogical techniques. It would appear that the factors that are related to use will vary as a function of the type of knowledge that is being disseminated. Shown in Table 2, page 10, is our categorization of the types of knowledge that can be disseminated.

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* This conceptual schema is based upon the work of Ronald Havelock, Rolf Lehming, and the author when we were all at the National Institute of Education.

TABLE 1

CATEGORIES SUBSUMED UNDER FOCUS OF RESEARCH

- Research Process
- Development Process
- Needs Assessment (focusing on a wide variety of needs)
- Market Research (focusing on research for particular products)
- Knowledge Processing (including summaries, syntheses, packaging)
- Spread (distribution, delivery, publication, communication)
- Information Seeking Behavior (including media use)
- Request Handling (searching information files, question negotiation)
- Linkage and Brokerage (function of intermediaries)
- Adoption and Utilization (process whereby users as individuals or organizations make firm decisions based on external knowledge)
- Adaptation (process whereby incoming knowledge or knowledge products become transformed, modified, or distorted in the user's attempts to relate them to his/her own context)
- Implementation (process by which individuals and organizations adjust over time to the initial decision to adopt or adapt externally generated knowledge or knowledge products)
- Impact (study of the effects of adoption, utilization, and implementation on the performance of persons or systems which are serviced by the knowledge user)
- Organizational Problem Solving and Decision Making (including leadership, organizational structure, conflict, conflict resolution, interorganizational linkages, planning, and implementing changes without reference to particular knowledge sources.

TABLE 2

FORMS OF KNOWLEDGE TO BE DISSEMINATED

- Practices (descrete practices)
- Programs (complex sets of discrete practices)
- Products (discrete products such as texts, manuals, slide tapes)
- Program Packages (complex sets of materials, design specifications, training, technical assistance)
- Research or Evaluation Results
- Research or Evaluation Methods
- Diverse

The third factor on which we will classify the projects we have labelled the "source of the knowledge to be disseminated." This factor refers to the type of agency which produced the knowledge to be disseminated. The various sources of knowledge are shown in Table 3.

TABLE 3

SOURCE OF THE KNOWLEDGE TO BE DISSEMINATED

- Own Laboratory or Center
- Various Laboratories or Centers
- Educational R&D Producers in General (including universities and private organizations
- Federally Funded Projects
- Educational Practitioners (including local, intermediate, and state agency personnel)
- Diverse

As was mentioned previously, the dissemination and utilization process can be studied using a variety of methods. In classifying the research being conducted by the laboratories and centers, we have used the categories presented in Table 4.

TABLE 4

METHODS TO BE USED

- Conceptualization
- Literature Review or Synthesis
- Existing Records or Statistics
- Interviews
- Questionnaires
- Case Studies (non-quantitative)
- Observations
- Conferences
- Diverse

B. CATEGORIZATION OF THE PROJECTS

The following categorization of the project is based on our reading of the papers prepared for this conference. Because of the page limitation on the descriptions of the projects, many details may have been omitted. In addition, it should be pointed out that several projects were in an early stage of development at the time the project papers were written; subsequent refinements in their structures and activities might cause these projects to be categorized differently in future mappings. Nevertheless, the present

categorization appears useful both as a means of demonstrating the application of the conceptual schema and in providing a preliminary mapping of the projects which can be used as one basis of discussion in future meetings of project representatives. We, therefore, may have miscategorized some of the projects. To facilitate the presentation of how the various laboratory and center projects map into our conceptual framework, we have listed the titles and abbreviations for each project in Table 5, page 13.

Focus of Research

Shown in Table 6, page 14, are the projects categorized according to the focus of their research. It is quite clear that these projects are focusing on adaptation and implementation of innovations in that six of the fourteen projects are dealing with these two topics. The study of adaptation and implementation appear to be difficult to treat as separate issues, since all of these projects are studying both of these topics simultaneously.

Three of the projects are studying the research process. In each case the focus of the research is on the involvement of practitioners in the research process. This characteristic also holds for the project studying the developmental process. The process by which a laboratory or center brokers information is also being studied by three projects, but each encompasses very different groups. One project is brokering information between teacher's centers, another between urban school districts, and the third between vocational educators.

Surprisingly, little research is being planned or is being conducted in some of the traditional areas of dissemination such as needs assessment, market research, and request handling. In addition, only one project is studying the spread of information, and only one is studying the information

TABLE 5

PROJECT TITLES, ABBREVIATIONS, AND PERFORMING AGENCIES

- Research and Development Interpretation Service	RDIS	CEMREL
- Research Planning for Urban Education	Urban	CEMREL
- Class Size and Instruction Project	CSIP	Far West
- Teachers' Centers Exchange	TCE	Far West
- Interactive Research and Development on Teaching	IRDT	Far West
- Educational Dissemination Systems Support Program	EDSSP	Far West
- Examining the Effects of Innovative Instructional Models	LRDC	Learning Research and Development Center
- Research Needs in Diffusion, Change, and Information Systems	CVE	National Center for Research in Vocational Education
- Study of School Improvement Processes	RBS	Research for Better Schools
- Application of the Concerns-Based Adoption Model to Bilingual Education	SEDL	Southwest Educational Development Laboratory
- Dissemination/Utilization and Programmatic Research and Development	DUPRD	SWRL
- Implementation Inquiry at SWRL	IIRD	SWRL
- Procedures for Adopting Educational Innovations Program	PAEP	Texas R&D Center
- Research in the Implementation of Individualized Schooling	Wisconsin	Wisconsin R&D Center for Individualized Schooling

TABLE 6

FOCUS OF RESEARCH BY PROJECT

Research Process	Urban, CSIP, IRDT
Developmental Process	RBS
Needs Assessment	none
Market Research	none
Knowledge Processing	RDIS, CVE
Spread	CVE
Information Seeking Behavior	EDSSP
Request Handling	none
Linkage and Brokerage	Urban, CVE, TCE
Adoption and Utilization	CVE, Wisconsin
Adaptation	RBS, SEDL, DUPRD, IIRD, PAEP, Wisconsin
Implementation	RBS, SEDL, DUPRD, IIRD, PAEP, Wisconsin
Impact	LRDC, CVE, DUPRD, IIRD
Organizational Problem Solving	EDSSP, CVE

seeking behavior of educators. This latter study is a literature review and synthesis and, therefore, will not be collecting any data.

Four of the projects are examining the impact of new products or procedures on both students and/or teachers. Finally, two of the projects are studying interorganizational relationships as they are used to further dissemination and utilization activities.

Form of Knowledge Disseminated

In categorizing the research to be conducted by the laboratories and centers, our second concern is "What is being disseminated or used by the individuals and organizations being studied?" As mentioned previously, knowledge in education can range from the results of a single study to a complex educational program.

As can be seen in Table 7, these projects tend to be focusing their attention on "macro" changes within schools. An indication of this is

TABLE 7

FORM OF KNOWLEDGE TO BE DISSEMINATED BY PROJECT

Practices	CSIP
Programs	none
Products	IIRD
Program Packages	LRDC, SEDL, DUPRD, IIRD, Wisconsin
Research or Evaluation Results	RDIS, EDSSP
Research or Evaluation Methods	none
Descriptions of Programs or Products	CVE
Diverse	CVE
Unspecified	Urban, IRDT, PAEP

that five of the fourteen projects are examining complex program packages. In addition, the Texas R&D Center's project may well be studying complex programs and practices. However, few, if any of the projects are studying more "micro" changes in schools. Only two projects are focusing on the dissemination of research and evaluation results, and in both cases they are not disseminating individual studies but rather syntheses of results from numerous studies.

Source of Knowledge to be Disseminated

The next variable on which we categorize the projects is the source of the knowledge to be disseminated or used. One-half of the projects are studying the dissemination and implementation of products produced by their own laboratories or centers (see Table 8). Five of the projects are studying the dissemination of material produced by a wide variety of sources, while three of the projects focus on the dissemination of information and materials produced by educational practitioners.

TABLE 8

SOURCE OF KNOWLEDGE TO BE DISSEMINATED BY PROJECT

Own Laboratory or Center	Urban, CSIP, LRDC, RBS, DUPRD, IIRD, Wisconsin
Various Laboratories and Centers	none
Educational R&D Producers in General	none
Federally Funded Projects	none
Educational Practitioners	Urban, RBS, TCE
Diverse	RDIS, EDSSP, CVE, SEDL
Unspecified	PAEP, IRDT

Methods to be Used

The final variable on which the projects were classified is the methodology to be used. As can be seen in Table 9, a large number of different methodological techniques are to be used by the projects, and a number of the project are using more than one technique. However, there appears to be a strong emphasis on qualitative rather than quantitative techniques, as exemplified by the large number of projects that are using case studies and observations.

Four of the projects are involved in conceptualization, with three of these (SEDL, Texas, and Wisconsin) attempting to categorize types of innovations and the key elements of an innovation. Both types of conceptualization are necessary if we are to study the adaptation of innovations by schools and school districts.

TABLE 9

METHODS TO BE USED BY PROJECT

Conceptualization	EDSSP, SEDL, PAEP, Wisconsin
Literature Review or Synthesis	CSIP, EDSSP
Existing Records or Statistics	Urban, TCE
Interviews	LRDC, SEDL, PAEP, Wisconsin
Questionnaires	LRDC, CVE, SEDL, PAEP
Case Studies	CSIP, IRDT, CVE, RBS, PAEP, Wisconsin
Observations	Urban, IRDT, LRDC, RBS, PAEP, Wisconsin
Conferencing	Urban
Unspecified	RDIS, DUPRD, IIRD

Two or three of the projects will be using the Concerns-Based Adoption Model and the Levels of Use and the Stages of Concern instrumentation developed by the Texas R&D Center.

C. SUMMARY AND CONCLUSIONS

This preliminary mapping suggests that the typical project appears to be a study of the adaptation and implementation process of complex innovations developed by the particular laboratory or center using a qualitative methodological approach.

In general, the research of the laboratories and centers on the dissemination and utilization process appears to be an outgrowth of their developmental efforts or their operational programs. With few exceptions, there does not seem to be a concern with the general field of knowledge utilization and the place of the projects within this larger framework.

By focusing their research on their own programs and products, the laboratories and centers may be indicating a lack of commitment to the long term study of knowledge utilization. Because none of the laboratories or centers has as its primary mission the study of knowledge utilization in education, these research activities may be the first to be cut if funding levels decrease.

Conferences, such as this one, can provide, in addition to the sharing of ideas and concerns, intellectual and social support for those laboratory and center researchers who are concerned with studying the knowledge utilization process. Hopefully this conference will lead to the building of a community of scholars concerned with the important problem of knowledge utilization.

COMMENTS ON THE AUSTIN CONFERENCE ON RESEARCH ON DISSEMINATION AND UTILIZATION

Michael Fullan
Ontario Institute for Studies in Education

These comments are organized according to three related categories. (a) observations and analysis of the project/papers which were presented and discussed at the conference, (b) issues regarding interaction/sharing both at the conference and in relation to possible follow-up, and (c) recommendations. The main theme that runs through these comments is that the diversity in the group is both a strength and a problem. People are interested in different parts of the elephant. What is needed is clarity about the fact that people are focusing on different parts and levels of the problem, about how these parts relate to each other, and about the main problems and issues contained within the different orientations in the projects.

A. PROJECTS/PAPERS

I am not sure that I can fully sort out all the main distinguishing orientations of the projects, but I think there are five concepts which go some distance in clarifying the different (but in many cases related) interests of the projects. The first set of (two) concepts are innovation and client--more precisely whether the project is concerned with single versus multiple innovations or ideas and whether the audience is focused (single or small number) versus broad (multiple). The second set of (three)

concepts are related to the dynamics of change, namely, whether or not the project is concerned with dissemination, intervention, and implementation/utilization. Both sets of concepts have to be related to each other in order to understand the different primary interests of the various projects. In order to simplify, as much as possible, the classification of projects, let me take the three change concepts and produce three tables according to whether projects are or are not primarily concerned with the concepts, and whether they are working with single versus multiple innovations or ideas.*

TABLE 1

Classification of Projects According to Dissemination (Addressed/Not Addressed) and Innovation Focus (Single/Multiple)**

	Addressed	Not Addressed***	Not on Same Scale
Single Innovations	Hall, Loucks/CBAM	Dominguez/Bilingual WRDC/ Individualized	Cahen/Class Size
Multiple Innovations	CEMREL/UEP	Mitroff/Continuing Innovations Niedermyer/Implementation Inquiry	Devaney/ Teacher's Centers

* I am leaving out for the time being whether the client system is focused or broad. I will comment on the latter in relation to some of the tables.

** Since many of the projects are complex and since the papers only give a brief description of them, some projects may be misclassified. The point is that using this classification we can determine the different types of project interests.

*** Most of these projects focus only on implementation in the papers presented, not on wider dissemination.

A small number of observations are in order concerning Table 1:

(1) Projects have different primary interests. Those with similar interests (e.g., within one of the quadrants, or within a column or a row) are on more common grounds to discuss mutual interests.

(2) The classification can be used to "push" the question of whether or not projects should be addressing other aspects (e.g., should the projects in the "not addressed" column be concerned with dissemination--the answer, of course, may legitimately be no).

(3) The classification helps to identify possible problems of communication among people seemingly interested in the same topic, but in quite different aspects of it. For example, people interested in the dissemination of multiple innovations; or, people interested primarily in implementation of single innovations may find that they have different primary concerns than those concerned with dissemination of multiple innovations; or, when the concept innovation is discussed, it may have quite different meaning depending on the quadrant in which the project is located.

(4) Regarding the two projects in the column "not on same scale," the concept dissemination is not in their vocabulary. They are more interested in setting up exchanges, generation of ideas, etc. Dissemination would be a by-product, not a deliberate goal. To do the latter would go against the philosophy of the projects. Nonetheless, the interests in the two projects are relevant to the other projects and vice-versa, if we move to a more general level of how ideas, practices get exchanged. The different orientations are useful for cross-critiquing the assumptions underlying each of the two sets of assumptions (i.e., one set is based on a deliberate strategy to

spread specific innovation(s); the other set facilitates exploration and exchange of ideas of mutual interest, but does not promote specific ideas).

(5) Finally, the question of client focus has been excluded from the table, but it can be applied. For example, in the dissemination/multiple innovations quadrant four of the six projects have a broad client group of one or a small number of school systems. One would expect that some of the specifics of dissemination would differ for the two groups.

TABLE 2

Classification of Projects According to Intervention (Addressed/Not Addressed) and Innovation Focus (Single/Multiple)

	INTERVENTION*		
	Addressed	Not Addressed	Not on Same Scale
Single Innovations	Hall, Loucks/CBAM WRCD/Individualized	Dominguez/Bilingual	Cahen/Class Size
Multiple Innovations	CEMREL/UEP Hanson/D&U Hood, Cates/EDSSP Hull/CVE Myers/RDIS RBS/School Improvement	Mitroff/Continuing Innovations Niedermeyer/Implementation Inquiry	Devaney/Teacher's Centers

* A distinction can be made whether a project is "researching" intervention (without intervening itself) versus whether it is actually "doing" intervention, e.g., WRDC/Individualized and RBS/School Improvement are researching intervention and not deliberately intervening, whereas others are deliberately concerned about intervening to bring about change--Hood, Cates/EDSSP; Hull/CVE.

Some comments:

(1) Similar observations apply--as in Table 1.

(2) Most projects which were involved in dissemination (Table 1) are also involved in intervention.

(3) There is only one change from Table 1--WRDC/Individualized did not directly address dissemination, but is interested in researching intervention. Note, however, that its interest in intervention refers to a single type of innovation whereas most others in the column are interested in multiple innovations. Again, many of the specifics of intervention are likely to be very different for the two groups.

TABLE 3

Classification of Projects According to Implementation (Addressed/Not Addressed) and Innovation Focus (Single/Multiple)

IMPLEMENTATION

	Addressed	Not Addressed	Not on Same Scale
Single Innovations	Dominguez/Bilingual Hall, Loucks/CBAM WRDC/Individualized		Cahen/Class Size
Multiple Innovations	Hanson/D&U Hull/CVE Mitroff/Continuing Innovations Niedermeyer/Inquiry RBS/School Improvement	CEMREL/UEP Hood, Cates/EDSSP Myers/RDIS	Devaney/Teacher's Centers

Comments:

(1) Once again, issues of common concern can be raised within quadrants or columns or rows.

(2) Some issues of implementation may be very different between the single innovations group and the multiple innovations one, but similarities can also be identified, as in (1) above.

(3) Questions of implementation may be explicitly raised with the "not addressed" group to determine how implementation is or could be addressed.

The point of Tables 1 to 3 is not simply an academic one. It has two very practical implications in light of the goals of the conference. (1) an analytical/research implication and (2) a communication/sharing one. Regarding the former, it is necessary to determine how the specific research variables and relationships among variables may be similar and different across projects. Without this, either hypotheses or relationships cannot be formulated or are misleading when they are formulated. Concerning the latter, it is necessary to be clear about the different interests so that the use of concepts can be more consistent.

B. INTERACTION/SHARING

There were four aspects of the goal of interaction and sharing that were very clear at the conference--the value of diversity, desire to examine more intensively projects within the group, the desire to not become too organized or structured (i.e., be flexible, set our own agenda), and the difficulty of communication within the group (related to the diversity).

Diversity

There was a definite agreement that the diversity of interests of different aspects of the problem represented by the participants was very valuable and necessary to retain and add to for future meetings. Tables 1 to 3 indicate some of the range of interests. Even though it seemed to present some confusion and problems of communication, it was recognized that the diversity was relevant and valuable in addressing the complexity of the problems. People seemed to prefer to struggle through the issues than to become more insular in only being concerned with narrow interests, although common interests on specific topics could be the subject of discussion of subgroups. The diversity was also emphasized by requests that new projects/participants be invited to attend future meetings.

Specific Project Exchange

For future meetings, there was an interest in more focused specific interaction between projects. People wanted to be more specific and use the resources within the group to examine, critique, and exchange information on specific projects.

Maintain Flexibility/Agenda

The group wanted to plan its own agenda, and not have it organized by any external group. They wanted to maintain flexibility which meant that new members should be constantly added and that the agenda should be planned according to the interests of those attending (and in light of the other suggestions).

Difficulty of Communication

Related to the diversity of the group was the problem of communication and the frustration and lack of clarity experienced by several participants. Some of the possible steps to alleviate this problem are listed in the next section.

C. RECOMMENDATIONS

Several recommendations for follow-up are stated or implied in the previous pages. The ones that seem most important to me are as follows:

(1) Not mentioned directly, but something which can be inferred is the extreme importance of clarifying key concepts so that different usages can be identified. One of these is the concept innovation. We need the kind of taxonomic clarification analogous to the one Miles did in 1964 (Innovation in Education: Teachers College Press; p. 21), except applied to what we now know, and involving dimensions of innovation and types of intervention. There are several dimensions within innovation that make it difficult for people to talk at a specific, problem solving level, or to formulate clear relationships. For example, the innovations to which people referred often differed on more than one of the following dimensions:

- multiple versus single innovations
- multiple versus single objectives
- mandated versus voluntary
- involving several levels of the educational system versus involving one
- focus on organization or staff effects versus focus on learning outcomes
- broad client versus focused client.

There are no doubt some other dimensions. In any case, it seems advisable to have someone write a paper identifying the major dimensions and systematically relating them to the other key concepts such as dissemination, intervention, implementation. Once this is

clarified, it will be easier to be more specific about problems, relationships (e.g., hypotheses and rationales) and common and differing concerns. Other key concepts might also be clarified in relation to innovation; for example, the various dimensions or aspects of intervention or dissemination.

(2) In future meetings, there should be a combination of relatively homogeneous and heterogeneous group discussions with groups being identified according to interests (e.g., along the dimensions in Tables 1 to 3). Homogeneous group meetings would emphasize specific problem-solving techniques, nature of relationships between variables, and so on. Heterogeneous meetings would function more as cross-critiquing, pushing the boundaries of project concerns, general awareness sharing, etc.

(3) Future meetings should be based on similar diversity of projects and should add new members/new interesting projects. Related to (2) and to earlier comments, a large part of the agenda should be devoted to specific more intensive project presentation and discussion of programs being conducted by participants. Planning of the agenda should be carried out in light of the issues raised in this report (which, in turn, were based on issues raised by participants at the October conference).

(4) The requirement of preparing written statements prior to the conference appeared to be most valuable for information exchange and probably for preparation for the conference for the writers of the reports. This practice should be continued for future meetings.

APPENDIX A:

CONFERENCE AGENDA

Conference on Research on Dissemination & Utilization

Research and Development Center for Teacher Education
The University of Texas at Austin

CONFERENCE AGENDA

Wednesday, October 4, 1978

7:00 p.m.	Social hour, Registration

Thursday, October 5, 1978

8:45 a.m.	Pick up at Villa Capri Motor Hotel
9:00 a.m.	Welcome: Sue Loucks Ollie Bown, UTR&D Director Ward Mason, NIE
	Overview and Goals: Sue Loucks
	Conference Format: Matt Miles
	Surfacing Issues by Focusing on Each Project
12:00 noon	Lunch
1:00 p.m.	Add Issues to Those Surfaced
	Issue Synthesis: Carnot Nelson, Michael Fullan
	Small Group Discussions on Selected Issues
	Small Group Reports and Wishes for Tomorrow
4:30 p.m.	End -- Return to Villa Capri Walk, swim, jog, visit LBJ Library
6:30 p.m.	Pick up at Villa Capri: Social Hour at Gene Hall's Supper at The County Line Return to Villa Capri

Friday, October 6, 1978

8:45 a.m.	Pick up at Villa Capri
9:00 a.m.	Options: more small groups, more commentary, etc.
12:00 noon	Lunch
1:00 p.m.	Synthesis and Determination of Next Steps
3:00 p.m.	Leave for Airport

APPENDIX B:

LAB AND CENTER PROJECTS INVOLVING RESEARCH ON DISSEMINATION AND UTILIZATION AND AUSTIN CONFERENCE PARTICIPANTS

Lab and Center Projects Involving
Research on Dissemination and Utilization
and Austin Conference Participants

Lab/Center	Program/Project	Conference Participant
CEMREL, Inc. St. Louis, MO	R&D Interpretation Services	Edwin Myers
	Urban Education Program	Pam Coe
Center for Educational Policy & Management University of Oregon Eugene, OR	Synthesis Research on Educational Policy & Management	*
Center for the Study of Evaluation University of Calilfornia at Los Angeles	Evaluation and Decision-Making in School Districts	*
Far West Laboratory for Educational Research and Development San Francisco, CA	Participatory Field-Based RDD&I	Len Cahen
	Teachers' Center Exchange	Kathleen Devaney
	Educational Dissemination Systems Support Program	Paul Hood Carolyn Cates
	Interactive Research & Development on Teaching	*
Learning Research & Development Center University of Pittsburgh, Pittsburgh, PA	Follow Through	Donna Mitroff
	Implementation in Classroom Envoronments	*
	Study of the Relationship Between Evaluation & Decision-Making	*
National Center for Higher Education Management Studies Boulder, CO	Information for Management/ Dissemination	Richard Johnson

* Not represented

Lab/Center	Program/Project	Conference Participants
The National Center for Research in Vocational Education Ohio State University, Columbus, OH	Program on Diffusion, Change, & Information Systems	William Hull Joel Magisos
	Program on Assessment and Impact	*
Research for Better Schools, Philadelphia, PA	Field Studies for Implementation	Stan Temkin
Southwest Educational Development Laboratory Austin, TX	Staff Development in Bilingual Schooling	Domingo Dominguez William Turner
	Follow-Through	*
Center for Educational Research at Stanford Stanford University Stanford, CA	Organizational Research in Schools	*
Southwest Regional Laboratory for Educational Research & Development Los Alamitos, CA	Product Implementation Studies	Ralph Hanson Fred Niedermeyer
The Research & Development Center for Teacher Education The University of Texas at Austin	Procedures for Adopting Educational Innovations	Gene Hall Susan Heck Shirley Hord Susan Loucks
Wisconsin Research & Development Center for Individualized Schooling University of Wisconsin Madison, WI	Studies of the Implementation of IGE	Linda Barrows William Davis William Klenke

Consultants:	NIE Representatives:
Michael Fullan Ontario Institute for Studies in Education Toronto, Ontario, Canada	Rolf Lehming Ward Mason
Matthew B. Miles Center for Policy Research New York, NY	
Carnot Nelson University of South Florida Tampa FL	

APPENDIX C:

PAPERS PREPARED FOR THE CONFERENCE ON RESEARCH ON D&U

Papers Prepared for the Conference on Research on Dissemination & Utilization

Research and Development Center for Teacher Education
The University of Texas at Austin

October 4-6, 1978

CEMREL, Inc.	Myers, E. "The Research and Development Interpretation Services: Issues for Dissemination and Utilization Research."
CEMREL, Inc.	"Research Planning for Urban Education Program, CEMREL, Inc."
CSE	Lyon, C. D., Project Director. 2-Page "Abstract," Evaluation and Decisionmaking in School Systems Project.
FWLERD	Cahen, L. "Participatory Research, The Class Size and Instruction Project."
FWLERD	Devaney, K. "Teachers' Centers Exchange."
FWLERD	Griffin, G. "School-Based Interactive Research and Development on Teaching: Some Recurring Themes."
FWLERD	Hood, P. D., & Cates, C. S. "Educational Dissemination Systems Support Program (EDSSP)."
LRDC	Mitroff, D. D., & Boston, M. E. "Examining the Continuing Effects of Innovative Instructional Models."
NCVE	Hull, W. L., Magisos, J. H., & Singer, N. M. "Research Needs in Diffusion, Change, and Information Systems."
RBS	"Study of School Improvement Processes."
SEDL	Dominguez, D., Tunmer, W., & Mace-Matluck, B. J. "The Application of the Concerns-Based Adoption Model (CBAM) to Bilingual Education."
SWRL	Hanson, R. A. "Dissemination/Utilization and Programmatic Research and Development."
SWRL	Niedermeyer, F. C. "Implementation Inquiry at SWRL Educational Research and Development."
UTR&D	Hall, G. E., & Loucks, S. F. "Overview of the Procedures for Adopting Educational Innovations Program of the Texas R&D Center."
WR&DCIS	"Research on the Implementation of Individualized Schooling."

THE RESEARCH AND DEVELOPMENT INTERPRETATION SERVICES: ISSUES FOR DISSEMINATION AND UTILIZATION RESEARCH

Edwin C. Myers

CEMREL, Inc.
3120 59th Street
St. Louis, Missouri 63139

October 4, 1978

Paper prepared for the Conference on Research on Dissemination and Utilization held at the Research and Development Center for Teacher Education, The University of Texas at Austin, October 4-6, 1978.

The Research and Development Interpretation Service:
Issues for Dissemination and Utilization Research

A presentation to the Laboratory and Center
Dissemination/Utilization Research Conference

Background

Teachers and administrators frequently complain that many of the research and development activities of the past decade are not useful to them. At the same time, researchers and developers worry because the outcomes of their work go unused. If research and development efforts are to improve the quality of educational practice, then communication between researchers and practitioners must be strengthened.

In response to this problem, NIE has funded the Research and Development Interpretation Service (RDIS) as a part of its Research and Development Exchange (RDX). The Research and Development Interpretation Service works to improve the effectiveness of communication between the research and development community and school practitioners. Each year the RDX identifies the content areas in which the RDIS staff will work. Elementary reading, elementary mathematics, and competency-based education are the current areas of attention.

The RDIS works to improve the effectiveness of communication between the R&D community and school practitioners. The objectives of this work are:

1. To serve as a resource to the Regional Exchanges for analytical and interpretive information on R&D in priority areas determined by the R&D Exchange.
2. To develop materials designed to enhance communication between the R&D community and practitioners.

a. To identify and summarize practitioners' concerns and information requirements.

b. To interpret practitioner concerns and information requirements for researchers.

c. To summarize findings from research, development, and exemplary practice which are relevant for practitioners.

d. To interpret these R&D findings for practitioners.

e. To explore and test new ways of presenting these summaries and interpretations to practitioners and researchers.

3. To deliver the interpretive information developed by RDIS to relevant audiences through the Regional Exchanges, using various dissemination strategies and formats.

4. To improve the quality of R&D interpretations.

The RDIS serves as a Central Support Service to the Regional Exchanges. All analytical and interpretive products developed by RDIS are designed primarily to assist the RX's in their interactions with their clients (e.g., SEA's, ISA's, LEA's).

Approach

Our approach is illustrated by our work during the past year which has focused primarily on the development of an interpretive report in the area of reading. Nearly all previous attempts to summarize the reading research literature addressed the question, "What have reading researchers discovered?" A few went on to ask, "What are the implications of these discoveries for the practitioner?" The first step in constructing the RDIS document, however, was to interview teachers, reading specialists, and principals to discover questions they

wanted answered. Reviews of the literature and interviews with leading reading researchers were conducted. In addition, an advisory Consultant Panel of reading researchers and practitioners--all nominated by their peers in the educational community--met several times for periods of two to three days to discuss the questions and determine how the research might best answer them. In our approach to the paper, we first address the question "What do practitioners want to know?" and then "What have researchers discovered that can help?"

Our approach is also characterized by an attempt to provide practitioners, through the Regional Exchanges, with a wide range of information sources to support their decision making. Collections of materials, which we are calling "portfolios," are being developed for each topic identified by the RDX. These portfolios will contain products developed by the RDIS staff, summaries and interpretations which are gathered from other sources, summaries of exemplary practices, and sources of non-print information.

Extensive review of RDIS work at every stage by both practitioners and researchers is another essential part of our approach, as reflected in the description of the development of the reading document. The Consultant Panels, which are assembled for each area of concern, help us to ensure that our work is both relevant and of high quality. In addition, data gathered during field testing will lead to revision and updating of the documents.

Another area of the project involves analytic work on the process of interpreting practitioners' needs and the process of interpreting the results of research and development. In addition, this area involves possible experimentation with different ways of presenting information to researchers and

practitioners. "An Experimental Plan to Study Alternate Strategies for Presenting Interpretations of Educational Research and Development" and "The Comparative Analysis of Approaches to Delivering Interpretations of Educational Research and Development" have been submitted to NIE.

Issues

In the remainder of this presentation, I would like to briefly identify a number of issues which, although they have been raised within the context of the RDIS project, seem to me to have implications for a wide range of dissemination and utilization research. I have grouped these issues into four categories roughly corresponding to the basic elements of an experiment. These categories are the subject, the dependent variables, and the independent variables. The fourth category which I have labeled strategies and tactics contains procedural issues and those which didn't seem to fit in the other three categories. Of course, this classification scheme is simply for the purpose of organizing this presentation and is not meant to define or limit the issues.

The Subject

Research, and particularly experimental research, usually implies that the relationship between two (or more) variables is being studied. Behavioral research, whether individual or social, usually implies that one of these variables (the dependent variable) is some aspect of the performance of an organism we call the subject. In educational research this is often a person who has commerce with what we roughly call the education system.

Issue Number 1: In dissemination research, who is the subject? At first (and perhaps forever) this may seem like a simple-minded question. Of course, in

any single study it is usually possible to figure out who was the subject. The issue raised here, however, is who is the subject in the long run. That is, is the major focus of our attention the student, the teacher, the collection of teachers in a school or district, or the collection of individuals which make up the society in which we live. This issue is not so important when we are conducting fundamental research studies where we ask whether certain changes in independent variables produced orderly changes in dependent variables. However, the issue becomes much more important when we ask whether changes in independent variables produce desirable states of the dependent variable.

As we seek optimum ways of producing useful outcomes, it might be advisable to regularly move back from the tree and take a look at the forest. As an example, suppose someone wanted to study the implementation of the science program in the shadows of the Rocky Mountains. Such a study might have as its subjects the teachers in the district. Data might be gathered from the teachers at various times, in order to better understand the relationship between their behavior and events associated with program implementation. A researcher might hope that in the long run data collected from studies like this might be helpful to others implementing similar changes.

But what about the students? Certainly, not everything can be studied at one time. And we all know the difficulty of trying to find changes in student achievement. The issue here is when or how often do we stand back and ask the question "Whose performance are we really attempting to understand or change?" This is not to say that students should be the subject of the research. A case could be made that the teacher should be the subject of the research. In order to make progress we must often make assumptions or develop hypotheses

about the relationships among the various potential subjects of our research. The issue here is how frequently we should challenge these assumptions.

The problem of finding the subject reaches its peak in the RDIS project. State departments of education gather information about their "needs." The Regional Exchanges gather information from state departments and other sources to somehow reflect the region's "needs." The executive committee of the R&D Exchange meets and determines the areas in which the RDIS project will work. The RDIS project produces documents and other materials which are distributed to the Regional Exchanges who distribute them to the state departments who distribute them to the intermediate districts who distribute them to local districts who sometimes distribute them to teachers who may or may not use them to alter their practice, give them to their students, or send them home to the students' parents. An issue for our research is, "Who is the subject?"

Issue Number 2: How should subjects be grouped for the delivery of independent variables? The RDIS project identifies as its audience a wide range of people involved with education. Potentially, government officials, administrators, teachers, parents, and even students might be the recipient of materials that we produce. At one extreme, materials cannot be tailored for each individual in the population. At the other extreme, it is unlikely that a single presentation will be maximally effective for all members of the population. Therefore, it seems sensible to subdivide or segment the population (or aggregate individuals into groups). The objective of segmenting the potential audience is to balance the cost of producing specially tailored materials against the effectiveness of such materials. We have done some exploration of this issue yet it remains mostly unresolved. Since all dissemination activities

have an audience, it would seem useful to explore how a total audience might best be divided into groups likely to have similar responses to a given presentation.

Dependent Variables

Issue Number 3: Speaking and writing versus other types of behavior. In a recent paper for the RDIS project, I wrote that our interpretive report was intended "to improve the ability of the audience to talk and write about the teaching and learning of reading." I anticipated vigorous arguments from my colleagues in the Laboratory, in the Regional Exchanges, and at the NIE. I had prepared myself for the impending assault with the response "Go define the other behavior you think we ought to change."

The assault never came. My controversial sentence barely managed to elicit a few yawns and several comments like "You don't really mean that" or "Everyone knows behaviorists can't deal with complex issues." The second comment was right on target. I had written the sentence not because I believed the document ought to influence only speaking and writing, but because I couldn't understand how to define other types of outcomes.

The issue of what kinds of performance to measure is with us whether we are talking about the behavior of students, teachers, administrators, government officials, or others. While ethnography has been used to help solve this problem (ethnographers define classes of behavior after it has occurred, a kind of non-statistical factor analysis), in the long run this approach simply delays grapling with defining more meaningful dependent variables.

One approach to this issue which my research training warned me about, however, is the one we are taking with RDIS and which I see in many other projects. Rather than measuring the important changes we are attempting to produce, we resort to asking people whether they believe important changes have occurred. When I ask you "What time is it?" and you respond "It's getting late," I have certainly learned something and it may be useful, but we are a long way from a clock.

Issue Number 4: What is disseminated? (See also Issue Number 5: What is disseminated?) Of course, in a research sense we always disseminate independent variables. That is, we deliver events (materials, workshops, questionnaires, etc.) which are intended to have some effect on the subject (see above). We conduct research presumably in order to increase the probability that the events we deliver will have their intended effect. Raising the issue "What is disseminated?" under the category dependent variables confronts the issue of whether dissemination efforts and the research which supports them should be responsible for delivering effects or delivering replicable independent variables. If we keep our eye on the effects, we may avoid spending enormous efforts to fine tune the strings of one violin when none of the members of the orchestra know how to read music.

Independent Variables

Issue Number 5: What is disseminated? In the initial RIDS work, we were quickly overtaken by the complexity of the job of selecting types of independent variables. An example of the problem was our effort to determine whether or not we should propose sample activities for teachers. These activities would be used as illustrations of principles from mathematics education research. One

point of view is that activities which teachers can use with their students provide the most concrete illustrations of the principles. Putting research into concrete terms, therefore, would be the most effective way to enable teachers to use the knowledge produced by the researchers. A contrasting point of view is that until the effects of these activities have been studied, it is unwise to make recommendations to teachers about the use of research information. At this point the RDIS project is not producing sample activities. However, the issue is not completely resolved.

In general, dissemination and utilization activities deliver a wide range of independent variables. The effects of some of these independent variables are fairly well known (e.g., a curriculum unit which has been through extensive testing). The effects of other independent variables are much less well known (e.g., a catalog of data bases and clearinghouses). What is the responsibility of people engaged in dissemination activities for knowing the effects of the independent variables they disseminate? What is the dissemination researcher's responsibility in this area? If, in our research, we come across a half-baked idea, do we have the responsibility to put it back in the oven?

Strategies and Tactics

Issue Number 6: Playing two games at one time. This is more of a curiosity than an issue. While most of my friends are accomplished at doing more than one thing at a time, I have always found it difficult. Therefore, this curiosity I have noticed in dissemination research may not bother anyone else. In my simple research paradigm, I can imagine gathering data from the subject (e.g., reading test scores), then engaging in some activity (teaching reading). At

this point I might want to see if my activity (teaching reading) had any effect on the subject. Therefore, I might gather data from the subject again (reading test scores). If I stayed awake during my methodology courses and do everything right, I might draw conclusions about the effectiveness of the activity performed. In dissemination I see people gathering data from subjects (e.g., needs assessment data). They then engage in an activity (e.g., disseminating promising reading practices). At this point the plot thickens for in order to determine the effectiveness of their activities, they measure programs adopted, levels of use, or even reading test scores. I'm not sure what to make of this observation but it strikes me rather like starting in the 100-yard dash and ending in the mile run.

Issue Number 7: Is dissemination separable from whatever is being disseminated? We are all meeting to discuss research in dissemination and, therefore, I must conclude that we all believe there is such a thing. Further, we seem to be saying that we can produce knowledge which has generality beyond a single product, program, or idea. While I am not questioning the truth of this assumption, I am asking, from a strategic point of view, whether from time to time we shouldn't reconsider the status of dissemination as separate from a program.

Issue Number 8: Responsiveness and leadership. Much of the information we have about dissemination leads us to believe that we are more effective when we respond sensitively to our clients' concerns and to what they say they need. Because dissemination efforts seem to hinge so much on the support and approval of our clients, we run the risk of perhaps falling short of our responsibility to provide leadership. It would seem worthwhile to periodically reconsider the balance between these two concepts.

Issue Number 9: Research versus common sense. The National Institute of Education and the Labs and Centers share a commitment to research and development as a means to improving education. Despite this commitment to the importance of research, we often find our activities more the result of the application of common sense arising from casual observations. This approach is necessary because research has not provided answers to all of our questions or guidance for all our activities. It would be pretty silly to advise the education community to wait until we have all of the answers. But flying by the seat of your pants is a good way to get lost. The illusion of a great deal of progress can be created when no one notices that a discovery is being made over and over again. Perhaps it's worth reflecting from time to time on the degree to which research influences our own activities. (Have there been any studies on the long-term outcomes of research conferences?) The issue is not whether an activity is worthwhile or advice valuable, but whether the research has been conducted. Common sense yields many principles to live by "Absence makes the heart grow fonder" and "Out of sight, out of mind."

RESEARCH PLANNING FOR URBAN EDUCATION PROGRAM, CEMREL, INC.

Pam Coe

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October 4, 1978

Paper prepared for the Conference on Research on Dissemination and Utilization held at the Research and Development Center for Teacher Education, The University of Texas at Austin, October 4-6, 1978.

CEMREL, Inc.
A National Educational Laboratory

September 8, 1978

RESEARCH PLANNING FOR URBAN EDUCATION PROGRAM, CEMREL, Inc.

Background

The Urban Education Program, located in the School and Community Services Group of CEMREL, Inc., arises directly from work undertaken within the Instructional Systems Program. A 1972 proposal was based upon similar ideas. A brief quotation from that proposal states a hypothesis based on the work of the Instructional Systems Program to that date and foreshadows the more complex concern of the Urban Education Program for discovering and implementing methods for improving learning opportunities for children in large city school systems (Buckholdt, 1972):

> "Possibly 30 to 40 percent of the children in many inner-city elementary schools are environmentally disadvantaged. They have acquired learning disabilities and learning deficiencies which hinder or, in some cases, block their academic progress. Many of these children test initially with an I.Q. in the defective range, below 79, and their ultimate academic achievement often does not exceed third or fourth grade level. While these children fare poorly in traditional educational systems, the performance of our remedial classrooms suggests that they are capable of better scholastic achievement. One possible solution is to put them into a system which provides the incentives necessary to keep them working at capacity and which gives them the remedial training necessary to overcome learning disabilities and deficiencies...."

The Urban Education Program (UEP) has defined its mission as collaborative programmatic and research efforts with the twenty largest school systems and twelve state departments of education in the CEMREL region. A statement of program goals and objectives, as described in the latest current program proposal, follows:

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Figure 1

Objectives	Performance Indicators
1. To document what is known about the problems of basic skills instruction and learning in urban school settings by	A minimum of ten reports detailing the findings will be produced.
a. collecting and synthesizing, in collaboration with other CEMREL program staff responsible for research and dissemination, the findings of current research bearing on problems of urban education;	The reports commissioned for the national urban education conference will be published and disseminated by August 1978.
b. analyzing the existing knowledge base to identify the explanatory parameters of the problems of providing adequate educational opportunities to low-income children in urban schools, including the conduct of studies of the status of school district initiated innovations and successful practices.	Status studies that highlight and provide information about innovations that school districts in the CEMREL region have developed and tested are being produced and will be updated about once a year.
	Each year of the project, a report will be produced and disseminated to update the synthesis and analyses of current research findings.
c. collecting and synthesizing, in collaboration with other CEMREL program staff responsible for dissemination and diffusion, information on a wide variety of R&D products and processes applicable to problems identified by urban school staffs.	In conjunction with the Research and Development Exchange, reports on the R&D products and processes that are identified and applied by the cooperating school districts will be prepared and disseminated to educational consumers.
2. To establish and maintain mutually beneficial relationships between urban school systems in the CEMREL retion and CEMREL program staffs, by	Detailed record keeping logs will be utilized for documenting the performance of the program in this category, as follows:
a. involving urban educators in all of the activities of the program, as consultants and, when appropriate, initiators and participants in joint problem-solving efforts;	A log of all contacts with school districts will be maintained, including a system for keeping detailed minutes of all meetings conducted by Joint Planning Groups and records of all telephone communications.
b. locating technical assistance for practitioners in the urban school districts of the CEMREL region, as needed and requested;	Each activity involving location and provision of technical assistance will also be logged, indicating where and how services were located and the use that was made of the information by the cooperating school district.
c. serving as a "broker" between urban practitioners and staff of the CEMREL dissemination and diffusion efforts, to ensure that the needs of urban schools are identified and met as fully as possible within these programs;	The program staff will utilize the transaction log developed by the CEMREL Midwest Regional Exchange to communicate requests from urban school districts and to ensure that they participate in the "feedforward" process utilized by the Rx.
d. maintaining close communications with staffs of the cooperating school districts.	
3. To conduct Forum activities as planned by the Regional Joint Planning Group: a summer institute, research study groups, and other meetings as needed, and to participate in cooperative action projects through the medium of the Forum.	Minutes will be kept of each Forum meeting and disseminated to all participants. Cooperative arrangements will be made with research and evaluation staff in each cooperating school district to document the impact on the school district of Forum activities and all joint projects.
4. To disseminate program outcomes and findings through the NIE Research and Development Exchange and other appropriate vehicles for communicating the findings to practitioners and researchers.	In addition to the provision of information that can be disseminated through the Rx, we will make presentations at appropriate national meetings, submit articles to educational journals and publications directed to practitioners, and conduct periodic conferences.

UEP cooperates closely with CEMREL's Midwest Regional Exchange (MRx) and the Research and Development Interpretation Services (RDIS), also located in the School and Community Services Group. Cooperation with the MRx extends to sharing several staff members on a 50-50 basis. Most of the work of these two staff members is defined so that it simultaneously fulfills the commitments of the MRx and the UEP programs. In addition, the Urban Education Program is currently defined by CEMREL, Inc. as the primary mechanism for intra-laboratory communication and coordination of program efforts. UEP research staff are responsible for maintaining up-to-date, accurate information about the current work of all laboratory programs and the capabilities of all laboratory staff members. Reciprocally, all laboratory programs have made a commitment to make their expertise available to members of the Urban Education Program network, to the degree possible, given their own program commitments.

Approach

The problem addressed by the Urban Education Program research effort is that of improving educational opportunities for children who attend large urban school systems, in the face of declining public confidence in schooling in general and urban schools in particular and in the face of dwindling financial support for schools. The UEP research effort is a modest one and is likely to remain so, considering the availability of resources. Therefore, the approach is one of action research in a problem-solving mode, utilizing a variety of methods but emphasizing observant participation with corrective feedback, to the extent possible, at all stages of the effort. It is felt that, to be successful, such research must, of necessity, be inter-disciplinary, flexible in orientation, and collaborative, since key actors in the processes which are being studied provide the best reality feedback if they participate actively and voluntarily in the research.

The projected research effort of the Urban Education Program, for which groundwork is currently being laid, is based on the following postulates: that, under circumstances of declining public support for education, improvement of educational opportunities for urban school children requires: 1) development of a more adequate consensus as to what kind of educational system would be satisfactory; 2) changes in school practice which will lead toward more satisfactory outcomes and 3) public perception that the schools have improved. The Urban Education Program focuses on changes in school practice which will improve instruction and learning in basic skills for more urban school children. This is currently the area of greatest consensus about the appropriate goals for public education. It is an area in which there is clearly considerable room for improvement, both in programs to improve the teaching of basic skills and in programs to assess the achievement of basic skills competencies.

It is hypothesized that, for the desired changes to take place, all the actors in the educational system must be persuaded rather than coerced to make appropriate changes. Education is a prime exemplar of a situation in which coercion can have only tangential effects. The old folk adage, "You can lead a horse to water but you can't make him drink," is true of children subjected to compulsory school attendance; since education is still a highly decentralized system, it is also true of the teacher and other actors in the school system whose decisions affect the experiences children have in the teaching/learning environment of the classroom.

It has been demonstrated frequently that successful implementation of innovations is more difficult in large urban school systems than in smaller systems. The sheer number of layers of personnel who must be persuaded if research and

development information is to influence the experiences children are provided in classrooms, is the likely culprit here, in addition to the sheer number of people to be persuaded. A few outstanding proponents of an innovation are highly visible in a small system but tend to be less visible in a large one.

In order to produce the desired changes in educational outcomes, under conditions which make additional resources unlikely, we assume that what is required is: 1) credible research into optimal uses of available scarce resources; and 2) techniques for persuading administrators and teachers to allocate resources most appropriately. Appropriate techniques of persuasion might include development of new contingency management systems within the schools which would reward administrators, teachers, and children for making appropriate changes, including rewards for flexibility in responding to corrective feedback; adequate, institutionalized corrective feedback systems; and an on-going effort to synthesize changes and what is learned from them. It is assumed that the variables leading to success or failure are both complex and interactive.

The creation and nurturance of an informational and influence network of representatives of the twenty largest urban school systems and twelve state departments of education in the CEMREL region is the major program tool for undertaking the action research we project. The theory and practice of educational networks is an appropriate tool for the complex and difficult mission of the Urban Education Program for the following reasons: The study of social networks in a wide variety of disciplines has emphasized the importance of informal social processes, which always co-exist with formal processes, in maintaining the legitimacy of current practices and/or in bringing about change. Deliberate efforts to create and nurture educational networks attempt to bring

to the formal educational system some of the benefits of informal association, including the flexibility of participation in projects on a totally voluntary basis. Networking appears to be a particularly appropriate means for disseminating information about the improvement of schooling in such a way as to encourage implementation of the desired changes. Coercion is clearly absent and participants are free to participate selectively on the basis of their own perceived needs.

During the past year, the Urban Education Program has conducted the following activities:

-- The convening of three sessions of the Regional Joint Planning Group, the representatives of urban school systems and state departments of education who participate in the urban education network, at each meeting providing participants both with access to consultants in fields of interest to them and with an opportunity to share experiences among themselves in a structured way.

-- Conducting site visits to each of the twenty school districts in the network, to meet with key district personnel and develop a demographic profile.

-- Publishing materials designed to assist network participants in their program planning and evaluation. The first publication is a Status Study of exemplary projects in the twenty participating school systems. The second is a report describing in detail CEMREL products and programs which are being used in urban schools. (These materials are up-dated periodically.)

-- Planning a national conference on what is known about problems of basic skills teaching and learning in urban school systems, commissioning a set of papers designed to provide a "state of the art" review in each topic area, and conducting the conference, with participation by Regional Joint Planning Group representatives and other members of their school system and state department staffs.

-- Conducting a needs survey designed to isolate issues of major importance to participants in the urban education network and conducting a forum session of the Regional Joint Planning Group designed to help participants define topics of common interest precisely enough to allow planning of collaborative programmatic and research efforts.

-- Doing initial planning for proposed collaborative research projects. We have concentrating initially on projects which may strengthen the capacity of large urban school systems to undertake educational research and development, through their own research and evaluation departments, as well as to implement improved educational strategies suggested by research.

The program is still in the process of developing record keeping and feedback mechanisms to allow both program staff and network partners detailed information as to what action is taken, by program staff and the educational agencies which are our partners in the network, and what are the results of that action. These mechanisms are being developed in close cooperation with the staff responsible for the resource center and regional file of the Midwest Regional Exchange. Making the information dissemination services of the Exchange readily available to all network participants and keeping records of the uses made of this

information are key functions of the record keeping and feedback communications with network participants.

Problems

While the Urban Education Program staff, working with its partners in the network, feel that we have accomplished a great deal in developing a workable mechanism for communication and sharing information, we have not yet designed a strategy to identify those problems that will best lend themselves to collaborative research and development efforts. Educators within the school districts and state departments are faced with problems of urgency and immediacy, requiring solutions on a day-to-day basis. It is frequently difficult to meet the demands of daily school operation, especially given the diversity of problems being faced by large city school districts today and at the same time, engage in a research based approach to solving problems. The kind of "distancing" from current pressing problems is indeed a luxury for most of the central staff administration with whom we work. Therefore, we feel that UEP staff must provide as much assistance and supportive approaches to initiate collaborative research and development efforts that go beyond attention to the throes of daily school operations.

One approach to dealing with the tasks related to identifying common problems that seem amenable to research and development solutions has been to identify a smaller group of regional representatives to plan, review potential solutions and recommend strategies to the larger group. This approach has recently been initiated in the program and there is currently an ad hoc, seven member planning committee working with staff to address a variety of issues related to the ways and means of engaging in collaborative research and development on critical problems of instruction and learning. As we work with this committee, solicit

reactions to these initial plans from the full group of network members, and launch collaborative work, we expect to derive more solutions to the major problem of the demands of immediacy and more long range planning to incorporate the use of research based solutions, where they are appropriate.

Another approach we are proposing is working with research and evaluation units in the school districts. Strengthening the capacity of research and evaluation units may prove to be very useful for the purpose of initiating a problem-solving mechanism within the system itself. Since this planning has not yet been completed, it is much too early to judge whether or not this approach will accomplish the objective we have proposed and discussed with the network members.

The program faces another and somewhat related problem. To date, we have provided some services that have been identified as extremely useful to our partners. The provision of current information in areas of concern and need, such as a variety of documents, reports, position statements, etc. on topics like competency based education, desegregation, effective approaches to classroom organization and management, etc. appears to be well received from the school districts and state departments. In addition, we have joined with other projects and programs within the laboratory and larger research and development community to disseminate inservice workshops and initiated informational sessions. This service function within our region is important, but we feel that we must retain a reasonable balance within the program between the provision of these technical assistance and regional services and engaging in research and development efforts that may generate school improvement. Therefore we are looking carefully at the outcomes of each activity and how the activities may or may not contribute to school improvement. With the existence of the multi-

plicity of problems and the need for technical assistance in a number of critical areas, we could easily exhaust our limited resources without addressing research and development based school improvement, which is our primary goal. The attractiveness of getting positive responses from our assistance and service function addressed to immediate problems can be very persuasive. We have developed a staff monitoring and reporting mechanism aimed toward identifying the outcomes of each activity and their balance.

The division between service functions and developing greater access for collaborate research and development efforts is not always immediately clear. Therefore, we are attempting to track and report those relationships.

In summary, we feel that we are reaching a stage, after one year of operation of the Urban Education Program, where we have generated interest, identified mutual problems of a general nature and can begin to plan directed and feasible approaches to school based-collaborative research and development work. In fact, as we were preparing this document an effort with the St. Louis Public Schools to bring r&d approaches to bear on the problem of instruction and learning in the area of writing, grades 6 - 12, has been discussed and plans move to proceed to engage in a collaborative effort with the school district.

Issues

Because the research activities of the Urban Education Program are still in the exploratory phase and can still legitimately be defined in a number of different ways, any issues raised by our work will be based on projections and not on a great deal of actual experience in the field. It seems appropriate to talk of potential issues raised by our plans.

A major issue is the ambitiousness of the undertaking we have sketched out above, especially in view of the limitation of resources faced by the program and all members of the network. Acceptable evidence of success that is required to satisfy the urban school systems to accept and implement improved practices that are identified and to engage in efforts needed to document and validate such practices is another issue of importance to the program and our partners. The need to document partial successes where they occur and utilize these experiences to continually inform our work and decision making is critical. Maintaining communication between the members of the network and within each representative agency so that we all function more adequately is another issue of concern to us. We believe that this effort to generate knowledge through action research and development in naturalistic settings is realistic and sorely needed. However, at this stage, we are concerned about the adequacy of the approaches given the nature of problems encountered in a most difficult educational environment -- the urban school.

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ABSTRACT

EVALUATION AND DECISIONMAKING IN SCHOOL SYSTEMS PROJECT

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October 4, 1978

Paper prepared for the Conference on Research on Dissemination and Utilization held at the Research and Development Center for Teacher Education, The University of Texas at Austin, October 4-6, 1978.

Center for the Study of Evaluation/UCLA
Project: Evaluation and Decisionmaking in School Systems
Project Director: Dr. Catherine Dillon Lyon

April 1978

NOTE: This project was not able to be represented, but wanted participants to know of its activities so that contact might occur in the future.

Abstract

This three-year project is identifying and analyzing educational evaluation at the local educational agency (LEA) level to improve the theory and practice of evaluation and to contribute to the renewal of American public education. The project's research methodology, reflecting ultimate concerns of improvement and renewal, is grounded in the integration of fieldwork and survey activities to achieve benefits in project design, data collection, and analysis.

Several major questions guide the project's activities and summarize the study's concerns: What are the functions of offices of evaluation? How are evaluation unit products being used? How are evaluation offices organized? What are the characteristics of evaluation personnel? How are offices of evaluation financed? What characteristics of school districts affect evaluation offices? What resource constraints and requests are reported by heads of evaluation organizations? Answers to these project questions will provide information that is useful in a number of ways:

- It will provide data essential to support NIE's mandate to build an effective education research and evaluation system.

- It supports NIE's capacity building program.
- It will provide, for the first time, accurate demographic data about LEA evaluation units and provide some insights into the operation of these agencies.
- It will make possible the development of empirically-based strategies for providing technical assistance to evaluation units for improving their operations.
- It will provide school district evaluation professionals with their first opportunity to develop a sense both of national identity and of the similarities and differences between their own procedures and problems and those of other evaluation units.
- It will provide state departments of education with the first accurate measure of LEA potentialities for evaluation and help SEA personnel shape appropriate programs of coordination and technical assistance.
- It will identify methodological problems that hinder the provision of educational assessment information to users rather than those measurement issues that emphasize theoretical deficiencies.

PARTICIPATORY RESEARCH

THE CLASS SIZE AND INSTRUCTION PROJECT

Leonard S. Cahen

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October 4, 1978

Paper prepared for the Conference on Research on Dissemination and Utilization held at the Research and Development Center for Teacher Education, The University of Texas at Austin, October 4-6, 1978.

Participatory Research *
The Class Size and Instruction Project

Leonard S. Cahen
Far West Laboratory

This informal paper will discuss the Class Size and Instruction Project. This research activity of the Far West Laboratory is sponsored by the National Institute of Education. Before moving on to a description of the Project and a discussion of how issues of dissemination and utilization are related to our research program I would like to first point out that, while we use the term "class size," we are primarily interested in "instructional group size" -- the number of teaching adults to pupils. how this ratio can be reduced for parts of school days and how this reduction affects pupils, teachers, and the general climate of classroom instruction. We are not pursuing the naive age old question -- What is the best or ideal class size? The results of a meta-analysis of the literature of class size and achievement performed for us by Gene Glass and Mary Lee Smith provides new evidence that other things being equal, reduction in class size (on the average) is associated with higher levels of pupil achievement. However, small reductions in class size (like from 28 to 25) will not make much of a difference. Improving the quality of instruction plus reducing the ratio of pupils to teaching adults well below 20, will make an important difference we think. If there is interest in a brief description of the meta-analysis technique and the Glass-Smith results I will be happy to cover them in one of our informal or small group sessions.

In order to provide you with a thumbnail sketch of our Project I have attached a copy of our "Overview." It is attached as an appendix. The

* Prepared for the Invitational Conference on Research on Dissemination and Utilization in Education. University of Texas R&D Center for Teacher Education October 4-6, 1978.

discussion that follows assumes that you have read it over.

Our project has its "Roots" in a four year Far West Laboratory project called the Beginning Teacher Evaluation Study (BTES). In the final year of this project we studied approsimately 25 second and fifth grade classes.

We observed in classrooms, tested pupil achievement, interviewed teachers, and kept careful records of the instructional history of six target students in each class. At the end of the year we had good estimates of how much time was allocated to each pupil in many content areas of reading and mathematics. The crude measure of allocated time was supplemented by other information about instruction from our observers. As it is probably obvious, allocated time does not tell the real story. Allocated time must be converted to productive time (which we call academic learning time or ALT). Allocated time is converted to academic learning time by using some of the following pupil or instructional characteristics -- whether the pupil is engaged in the task (i.e. not out of his/her seat at the pencil sharpener all period) and engaged in tasks that are of the right difficulty level for the pupil. We were able to correct or convert allocated time to estimated ALT from allocated time for each pupil by using estimates of the pupil's engagement rate and success rate. ALT was found to be positively related to achievement growth. We were naturally interested in things teachers did to increase pupil ALT. We observed a class of teacher behaviors including diagnosis, prescription, presentation, monitoring and feedback. ALT was increased when teachers had better knowledge of their pupils (were able to make sounder diagnoses, for example). From monitoring classes last year it became obvious that teachers are constantly faced with a major mangagement task. I wondered if teachers would be able to teach better if they had fewer pupils. Hence the formation of the Class Size and Instruction

Project. The BTES findings will be extended and applied to our new project. We will be able to watch the same teachers teach larger and smaller classes this year. Will teachers be able to better individualize their instruction with smaller groups?

The participatory nature of our research is mentioned under question two of the appendix. It is a very important aspect of our program. There has been a recent surgence in the concept of encouraging teachers to actively participate in research on teaching. (In the past this type of research was called action research.) Attention is being paid to participatory research in England as well as the United States. In years past teaching research was typified by a group of educational researchers at a University, R&D Center or Laboratory conducting their research in classrooms. The teachers were, in part, the "SUBJECTS," not unlike the pupils in their classes. Our position is to make the teachers part of the team. They will help refine the questions and the measurement definitions, react to the procedures and participate in the analyses and interpretations. One of the things we have to learn about this year are ways to make this collegial relationship work. We know we must move beyond superficial relationships. Our colleague, Dr. Gail McCutcheon of the University of Virginia, has already had experiences with working on a collegial research relationship with teachers. The potential seems great to us. We acknowledge that there are many problems in collegial relationships and their contribution to research and to knowledge. One criticism might read as follows -- If the teachers are active participants in research isn't it highly probable that the teachers will know what the "treatment" or experiment (in the broadest sense) is about and the results are therefore contaminated? If we look upon our program as a series of sophisticated TINKERINGS I am not concerned about

immediate generalizability or validity of the experiment. By tinkering, I mean we will have a continuing series of meetings and interactions among members of our Consortium (our research staff, teachers, and teachers educators). We will be working as clinicians. We will report what we see from our different frames of reference. We will interpret what we have seen and people will offer suggestions for improving instruction. This will now allow us to go back into the classroom and try out different proposed ways of, say, increasing pupil engagement. The teachers will tell us their personal experiences of the result of the tinkering. A teacher educator who will be observing in the class may see things that are similar and some things that are different. This is, indeed, a different approach to conducting research.

When I was originally invited to participate in the Conference it was not immediately clear to me how my present research program was related to dissemination and utilization of information. After thinking more about it and having a conversation with Susan Loucks I realized that we would, indeed, be disseminating and utilizing the information we had obtained in the BTES Study in our current program. In our working seminars, (the Consortium) both in the San Francisco/Bay Area and in Virginia we will be talking about these findings, discussing their implementation in the classes we are presently working with, etc. It seems that the participatory research idea is an excellent way of disseminating prior research findings and looking at ways of seeing whether they replicate and how they can be modified and extended.

In the appendix the different "methods" that we will use for obtaining information are listed. We are all very interested and excited about how we can integrate knowledge from formal observation and from the case study

method which also uses observation. Hopefully, the case study methodology will give us a way of looking for the unanticipated outcomes and classroom happenings that we would not have thought to have scheduled in our formal measurement and observation approach. I am also intrigued with the possibilities (problems) of integrating knowledge that some people would classify as "hard" versus "soft." I personally dislike the distinction. We can record in quantitative variables the percentage of time a pupil is engaged. A qualified observer with a gift for descriptive prose can help document the record of how and why the pupil was engaged. These two sources of information must be integrated. I think one of the things we must look at in the future is how we can interface quantitative and qualitative information and how we can best utilize our research resources in the gathering of both of these types of information. There certainly has been an increase in the interest of using qualitative approaches or case study methodologies. Robert Stake of CIRCE at the University of Illinois has made a very sound case recently for the types of information that can be gathered and described in the case study methodology. On the other hand, if one has a limited budget, time, and staff, can one obtain enough "convincing" information from the case study methodology? We have long heard the statement of a picture being worth a thousand words but we must now understand whether a thousand words is equivalent to ten to twenty pieces of data.

Appendix

THE CLASS SIZE AND INSTRUCTION PROJECT
June 1, 1978 - November 30, 1979

An Overview

Key Laboratory Staff

Dr. Leonard S. Cahen, Principal Investigator
Dr. Nikola N. Filby

Adjunct Research Staff

Dr. Gail McCutcheon - (University of Virginia)
Dr. Gene Glass - (University of Colorado)
Dr. Mary Lee Smith - (University of Colorado)

Questions

1. What are the overriding questions that guide the Project?

   a. Do students learn more in small classes (Instructional groups)? If so, how and under what conditions?

   b. What can a teacher do with approximately 15 children that she can't do with, say, 25 pupils?

   c. What are some ways that instructional group size configurations can be reduced in "large" classes, i.e., use of aides, tutors, "staggered" reading programs, etc.?

   d. What are the economic and policy issues in the relationship of class size and instruction?

2. The Class Size and Instruction Project is <u>participatory</u> in nature. What does this mean?

   The Project will involve a Consortium of teachers, teacher educators and researchers. They will meet regularly to help design the study, react to findings as they emerge and to synthesize and write up the findings.

3. What are the activities to be undertaken by the Project?

   The Project will have teaching sites in the Bay Area and Charlottesville, Virginia. From September to January, two second grade classes will participate at both sites. In January we will create three classes (from the two) at both sites and two additional teachers

will be hired. By using observation, interviews, measurement and case studies, we will be able to document what takes place when the class size is reduced.

In addition to these field studies, we have commissioned meta-analyses of the literature. Drs. Gene Glass and Mary Lee Smith have completed a meta-analysis of the literature on class size and achievement. Shortly they will start to work on the literature of class size and teacher morale, classroom process and pupil affect. The results, in addition to leading to formal publication, will be examined by the Consortium. In the Spring of 1979 we will commission policy reaction papers to the meta-analyses. We plan to commission papers from school administrators, economists, teacher educators, teachers and researchers.

4. What are the major methodologies used in the Project?

We are using a multi-disciplinary approach. The methodologies include (1) observation, (2) teacher interviews, (3) detailed case studies, (4) quantifiable measurements, (5) meta-analyses of the literature and (6) pupil measurement. As mentioned earlier, we will also have an experimental dimension, i.e., the larger classes are split into smaller classes after January 1, 1979.

5. While the resaerch plan is presently under design, what are some of the aspects of instruction that will be attended to in classes?

a. changes in teaching techniques, instructional processes, curriculum assignments;

b. changes in ways of interacting with children and the nature of that interaction;

c. changes in ways of organizing a classroom and a school day;

d. changes in grading, commenting on student work;

e. changes in communicating with parents;

f. changes in the quality, nature and amount of teacher/student and student/student interaction;

g. changes in teacher satisfaction;

h. changes in the amount teachers know about each child and can process about children;

i. changes in number/type of interruptions, wait time, pupil engagement, number of times they get to talk.

TEACHERS' CENTERS EXCHANGE

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October 4, 1978

Paper prepared for the Conference on Research on Dissemination and Utilization held at the Research and Development Center for Teacher Education, The University of Texas at Austin, October 4-6, 1978.

Kathleen Devaney
Teachers' Centers Exchange
Far West Laboratory

Teachers' Centers Exchange

The Teachers' Centers Exchange at the Far West Laboratory is an information, referral, and mutual support center for a national network of teachers' centers. The Exchange maintains back-and-forth communication with about 500 organizations and individuals, and both demonstrates and investigates the format and process of an informal, interactive network as a means of disseminating an education innovation. Our aim is to find out whether a naturally formed, voluntary network can be stimulated, strengthened, and stretched to function as a dissemination instrument, all the while retaining its qualities of voluntarism, mutuality, trust, and easy access to the dispersed sources of information and expertise.

Background

The Exchange was funded in October 1975 after a 14-month feasibility study of about 40 "grassroots" teachers' centers to see whether there was support for strengthening and coordinating the spontaneous communications already taking place among a number of them. The project was initiated by Marc Tucker and Mary Harahan in the Schools Capacity for Problem Solving Group of the National Institute of Education (now the Program on Education Policy and Organization). The Institute's interest was not only in the teachers' center concept as an example of local schools' problem solving and teachers' self-help, but also in the dynamics of an informal network, and how these differ from conventional dissemination activities.

Teachers' centers developed in the late '60's as workplaces where teachers came together to develop curriculum materials for classrooms which were being changed by the informal innovations of the '60's. They provided inservice for teachers that was congruous with the style of the "active learning" innovations they were being asked to adopt. Centers also were an instrument for mutual support among teachers advocating alternative, experiential teaching--mainly for elementary children--and interested in making connections between schools and the other major educational resources for children, i.e., families, community, libraries, and museums. Teachers' centers are themselves informal networks spreading information and resources among practitioners who share like beliefs and goals and who volunteer their expertise in return for a source of help and support for themselves.

Interest in social network theory has arisen among education policymakers along with the priority for finding ways to put to work the innovations produced by the federally-funded R&D enterprise. The theorectical foundations for the Teachers' Centers Exchange have been the work of Donald Schon, Allen Parker, and Matthew Miles on informal, interactive networks, and that of David Clark and Egon Guba on "configurations." These theories seemed to us to describe and explain the communications activity in which we observed teachers' center practitioners engaging. Parker notes the following traits of networks in his 1977 study of networks in education: 1) These networks exist as an alternative to established systems of information flow. 2) Their participants have a sense of community or shared purposes. 3) As a result of their shared purposes, network participants give each other information and

psychological support. 4) Networks are served by a facilitator or coordinator. And, 5) participation in the network is voluntary and all participants are treated equally.[1]

A. J. Light, Joint Secretary for Curriculum Development of the Schools Council in England, describes natural "networking" activity among teachers' center wardens in England during the 1960's. In 19[illegible] we found it applicable to networking among American centers.

> We had one thing in common: to learn from each other. We met on neutral but professional ground. This unique ethos--and it's the ethos that is important--has been preserved. It enables people of differing status in the educational profession to drop status and institutional prejudice and work together. Also we have been fortunate in having leadership by people who were able to act in a professional way without pulling rank, to operate on credibility as helpful people, to facilitate interchange and gather people together.
>
> Just as an individual has a threshold of readiness to accept a new idea, so do organizations or school systems. People who get to the take-off point do so at the same time as people in other places. The point is that when they get to the take-off point you need to have ready the resources and leadership to offer them.
>
> But don't try to systematize the unsystematic; don't try to modify and classify the creative energies of teachers. We have been trying to find bureaucratic systems to disseminate good practice. But ideas don't flow through delivery systems alone. They flow in the most odd ways.[2]

These words summarize the Exchange's theory, goals, staff style, project process, and experiences as of September 1978, as well as they expressed our intent in August 1975.

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1. Parker, L. Allen. Networks for Innovation and Problem Solving and Their Use for Improving Education: A Camparative Overview. Report for the National Institute of Education Order No. NIE-P-76-0318. Preliminary Draft, March 31, 1977. Center on Technology and Society, Cambridge, MA.

2. Conversation between Devaney and Light, July 1975.

Approach

Our approach to research has been to insert ourselves into a functioning network and to support and stretch it by offering services; and then to document the spread of the network and the substance and style of our work. The following description of our services comes from the information flyer which we have used since 1975:

> Give-and-take about teachers' centers is the aim of a project we began in fall 1975 and call an "exchange." Here's what we are doing (at no charge):
>
> Finding answers for educators' (and laymen's) questions about teachers' centers and similar forms of staff development: telling about program and policy in experienced centers, referring inquirers to center leaders, making matches among people whom we perceive to hold common purposes, feel similar needs.
>
> Spotlighting and circulating information, ideas, and themes: curriculum materials, reports, research and position papers from teachers' centers; writing descriptions of centers, case studies, articles, bibliographies. We circulate information to those who have expressed a particular focus or problem.
>
> Arranging for meetings among teachers' centers people and those who wish to learn about, with, and from them; facilitating visits to centers. We are also exploring the use of joint study projects, participation in institutes, and consultancies as ways to spread the word and practice of teachers' centers.
>
> We invite your inquiries, and your news, opinions, and ideas. Our grist is not just the facts of life in teachers' centers (program, participation, decision making, finance) but also such issues as projecting differing goals for schooling, rearranging patterns of teacher preparation and certification, involving teachers in new curriculum development, helping teachers to influence curriculum and instruction decisions within school districts.
>
> We will appreciate news of other teachers' centers and inservice and curriculum development networks, notices of meetings, conferences, publication, media, and other communications of interest to teachers' centers.

We make a particular point of emphasizing the "premises and purposes" which we hold to because these ideals are the "glue" we found to be holding the original network together. Our challenge is to stimulate, serve, and expand the network without distorting it. They flyer states our position in this way:

> Easy access and volunteered sharing in a network seem to depend on members holding some common beliefs and goals. So, while we're aware of many different structures and programs in teacher centers, our aim to gain (and assess) experience within an interactive network leads us to focus on that subgroup of well-developed and just beginning centers which share some common premises and purposes.
>
> A shared premise is:
>
> *Teachers must be more than technicians, must continue to be learners. Long-lasting improvements in education will come through inservice programs that identify individual starting points for learning in each teacher; build on teachers' motivation to take more, not less, responsibility for curriculum and instruction decisions in the school and the classroom; and welcome teachers to participate in the design of professional development programs.*
>
> And, amidst rich variation in programming, setting, style, and structure, we find common purposes among this network of centers:
>
> To respond to teachers' own definitions of their continuing learning needs with assistance and instruction that helps teachers enrich and activate the learning experience of the children in their own classrooms.
>
> To provide an environment where teachers may come to work on materials or projects for their classrooms, receive instruction individually and together, and teach and encourage each other.
>
> To advise and assist teachers in their schools, working in the spirit of finding the teacher's own starting points for improvement.
>
> We want to reach others who share such premises and purposes for staff development and who would value interacting in a network. There's no fee. If you like, and as you need, be in touch to give and take!

One of our research aims is to see whether the original purposes and premises we found are maintained as the network and the Exchange's federally-funded services are offered to a wider constituency.

Also basic to our approach is our emphasis on being an information and referral center and not a technical assistance agency. The distinction is crucial, for it represents the difference between lateral and top-down dissemination of information and implementation. We do not view ourselves, nor do we function, as the experts on teachers' centers. We offer referral to expertise within the network. This approach was described in our 1975 blueprint for an information service for and about teachers' centers:

> Conforming to a networking rather than a technical assistance style of functioning, an Exchange would expect recipients of help to initiate their own requests, define their own needs for assistance, and, as they develop, share their own strengths. Further, an Exchange would expect initial givers of help to be open to new ideas and to express continuing needs for assistance, but not necessarily to use the Exchange as a means for communicating with people they already know. . . .
>
> This does not mean that there are no ways an Exchange might help the experienced centers. . .The status of teachers' center development today, as a vulnerable alternative experiment within an education establishment which is itself undersupported, poses a special set of needs on the part of the developer centers. An Exchange which seeks to gain the experienced centers' assistance to potential adopters must find ways to procure help for the developer centers. . . .[3]

Although we publish directories of the network, collections of opinion and advice, and we circulate and call attention to significant materials produced within the network, the Exchange does not operate

3. Devaney, K. Final Report: Feasibility Study for a National Information and Resource Sharing Agency Among Teachers' Centers. Final Report for the National Institute of Education (Group on School Capacity for Problem Solving) Contract No. NE-C-00-3-0109. Far West Laboratory, August 29, 1975. pp. 10, 11.

as a meterials clearinghouse but rather as a personalized information and support center. Staff respond to every request for information with a personal letter or phone call, and probe to discover inquirers' basic premises, aims, local resources and problems, and style. In order to assure that network expertise is available, we run a Mini-awards program, dispersing about $50,000 a year in travel and personal service grants so that people from the network can visit another center or bring a consultant to their own site. In order to offer service to experienced centers' staff, we run Workparties (small 2½-day seminar/conferences) for them to share each others' experience. Another principal objective of our research is to verify and document the power of such face-to-face" communications to spur actual implementations rather than simply awareness-level dissemination of information.

At this point in the project our research methods are simply to document exhaustively the entire information flow through our office. All messages are summarized, coded for computer (as to type of organization, means of communication, who initiated the contact, geographic region, etc.), filed, and counted. These files now comprise a wealth of raw material on the charteristics of a network and the operation of a unique information center. We will draw on these documents to produce a book on our experience by 1980.

Problems and Issues

Our greatest problem is to keep from being overwhelmed and bureaucratized by the burden of maintaining our exhaustive documentation while expanding the network to all comers. When we started, we didn't

anticipate the Office of Education funding for teacher centers. Availability of federal funds has created intense interest in teacher centers and a demand for our services. We are obligated to offer the expertise of the network to all and at the same time to convey its special premise and maintain its informal, responsive, face-to-face style. A [illegible] solution to the problem is decentralizing into sub-networks. We anticipated doing this, but we are not experiencing a significant lessening in demand for nationwide communication. We try to control our growth by emphasizing the network's special ideals while underlining its openness to all who find the ideals consonant with their own. We also strive for maximum blending of staff efficiency with staff responsiveness. [illegible] problem illustrates the issue common to networks which have become movements. In the process of becoming popular does the movement lose its original essence?

A continuing problem for the Exchange is how to recompense long-experienced members of the network for their service to newcomers who are federally funded? In fact, this is what we have to do [illegible] courage new O.E. centers to participate in the network, how do we stimulate and assist the veteran centers in the development and improvement of their own practice, without falling into the technical assistance mode of operation?

A technical problem is that of keeping track of the network messages that don't go through our "information central." In the first two years of operation we traced these communication paths on a sample of centers in the network, and we discovered intimations of a wealth of fact and

surmise that is beyond the project's current technical expertise to interpret.

Finally, we must discover reasonable ways to compare our style of function and our effects on our constituency with those of more conventional dissemination projects. For light on this problem, we look forward to the upcoming meeting in Austin.

SCHOOL-BASED INTERACTIVE RESEARCH AND DEVELOPMENT ON TEACHING: SOME RECURRING THEMES

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Paper prepared for the Conference on Research on Dissemination and Utilization held at the Research and Development Center for Teacher Education, The University of Texas at Austin, October 4-6, 1978.

FAR WEST LABORATORY

Interactive Research & Development on Teaching

Teachers, Researchers, Trainers/Developers Conducting R&D Together

William J. Tikunoff and Beatrice A. Ward, Directors

SCHOOL-BASED INTERACTIVE RESEARCH AND DEVELOPMENT ON TEACHING: SOME RECURRING THEMES

GARY A. GRIFFIN*

During the course of implementing Interactive Research and Development on Teaching (IR&DT), several themes have emerged which help to understand school improvement efforts as they are influenced by existing school practice. These influences might be seen as appearing on different places of a continuum. Toward one end of the continuum can be found those persistent barriers to innovation which seem to live independently of the intentions of persons of good will who want to move a school or a school system forward. Toward the other end are those bright spots of promise which, much like the carrot dangling in front of the recalcitrant mule, lead us forward and bolster our spirits, if only in anticipation of some distant reward for our efforts. The purpose of this paper is to present a brief discussion of several of these themes which have been discovered (or, better, rediscovered and affirmed) through a systematic study of the installation of IR&DT in two very different settings.

Theme One: The Tenacity of the Conventional Conception of "Teacher"

Literature treating the culture of the school as a social system suggests that there are certain teaching conditions and practices which are more often present than absent, regardless of where a teacher acts out his/her role. 1 For instance, teachers tend more often to work in isolation than in

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* Dr. Griffin is on sabbatical leave from Teachers College, Columbia University. He is currently at the Laboratory as a Visiting Scholar in order to conduct the evaluation study of IR&DT implementation.

colleagial groups, meet with students for concerted periods of the day with few respites, have few formal or informal contacts with parents or other school patrons, are seldom absent from the classrooms in which they perform their teaching, engage in professional development programs away from their classrooms and very seldom on school time, and are seen as being "teachers" only when these and other similar conditions are met. Despite the urging of scholars and certain practitioners for a conception of teaching which would include opportunities to plan, evaluate, reflect and study new practices, there is little evidence to suggest that such propositions are being put into practice.

IR&DT requires research to emerge from the concerns of teaching, which depends upon the teacher's knowledge of the complex world of the classroom, and places time and energy demands upon participants beyond those which are usually seen as "normal" for classroom teachers. Clearly, the demands of these two requisites--inquiring systematically into one's practice and acting upon the consequences of that inquiry for research purposes--places teacher members of IR&DT teams in a position where they are required to act out the conventionally expected behaviors of teaching and the new ones imposed by IR&DT. This creates tensions that are manifested in actions such as the reluctance of many teachers to take released time even when it is made available through the provision of substitute teachers. In several instances IR&DT teachers have proposed weekend team meetings or evening sessions in lieu of schoolday ones. The reasons most often advanced for this reluctance to leave the classroom revolve around the belief that students will be unnecessarily deprived of their services. Without arguing the effect of short-term teacher absence from the classroom, it is interesting to note that as IR&DT activities became more meaningful for the teacher participants their reluctance to reorganize their usual conception of the teacher role was diminished.

Theme Two: The Power of Teachers Observing Teachers for Professional Consciousness Raising

Every occupational group has its own history. This history is composed of belief systems, practices, theoretical formulations, research emphases and the like. One of the pieces of teaching history is the repeated exhortation for teachers to learn from one another through formal interaction such as observation. The author remembers that a condition of inservice education in his first years of teaching was that every teacher, probationary and tenured, visit another teacher during each school year with the expressed intention of improving practice. The recent I/D/E/A study of school change had as a central theoretical stance the importance of what was called the peer group strategy which assumed that teachers would learn more and better from one another than from the usual brief encounters with "experts." 2 Notwithstanding the logical and, in some cases, demonstrated power of this position, there appears to be little manifestation of it in school systems across the country.

Both of the IR&DT teams decided to visit other classrooms essentially to determine the degree to which the issues they wished to study were present in other settings and to find out if other teachers related positively to the proposed research. Although there was some reluctance to move away from their own classes, IR&DT teachers uniformly report that the experience was

valuable for research issue identification as well as interesting and informative from a pedagogical standpoint. Here, then, is one more piece of evidence that peer interaction is a positive influence upon teachers' understanding of their own practices.

Theme Three: The "Dailiness" of Schools

Much has been written about the so-called "daily grind" of schooling. There is a momentum to what goes on in schools that seems to promote sameness rather than difference from day to day and from year to year.3 This, of course, is not to say that teachers and others in schools do not now and then interrupt the routine with a school assembly, field trip, or other "special" activity. However, aside from these less-than-frequent forays outside the classroom walls and self-imposed pedagogical boundaries, there is little concerted effort to alter the existing pattern.

The two IR&DT teams live out their worklives in settings that differ according to urban/rural demographics and school population characteristics. Sharp distinctions in prior experience and academic backgrounds of members also exist. What is observed in the specific school settings, however, is interestingly similar. If it is possible to differentiate style and strategy, teaching behaviors tend to be very similar in terms of the strategies used although differences of individual style are apparent. The grouping patterns and organizational arrangements, although located in markedly different physical settings, bear close relationships. Even the occasional crises and upheavals have the ring of familiarity from setting to setting and from time to time in those settings. What can be observed, then, as it has been observed before in other ideological contexts, is the staying power of basic structures and the tendency of those structures to promote a sameness despite the presence of sharply different people and place-related phenomena.

Theme Four: The Power of a New Collegial System to Promote the Acquisition of New Understandings and Skills

Another piece of the "consciousness raising" pattern noted earlier can be found when people are put into direct working contact with others who have different professional perspectives. IR&DT depends upon the playing out of three different roles: the teacher, the educational researcher, and the teacher trainer/developer. It was assumed that these roles were the essential ones to bring about a more credible, less esoteric, and more immediately meaningful pattern of research and development on teaching while, at the same time, the conventionally accepted standards for "good" research and development would be maintained. There was never any consciously articulated intention that IR&DT would make teachers into researchers, researchers into trainer/developers and so on. It was assumed that each of the perspectives would be contributed and that the contributions would enrich the research and development efforts.

What has happened in addition to the realization of this assumption is that team members appear to be acquiring sensitivity, skill, and knowledge

different from that which they have normally as part of their repertoires. Researchers learn about and act upon greater knowledge of the classrooms they enter, teachers use research language and employ sophisticated methodology during team meetings, trainer/developers conform to new or renewed expectations for working with teachers, and all members to different degrees assume leadership and management roles. It appears obvious that the tasks to be accomplished and the new configuration of persons to do them bring about changes in professional orientations.

Theme Five: The Power of Positive Self-Perception of New Roles to Promote Commitment

As has been stated explicitly and implicitly in this discussion, there are obvious energy commitments inherent in carrying out IR&DT. For teacher members of the two teams, particularly, there is the necessity to add yet another layer on an already complicated worklife. After-school meetings, private inquiry into literature related to the team's work, communicating with team members and others, testing data collection procedures, analyzing data and the like are all important team activities.

From the beginning, probably largely due to the process of selecting team members from persons who volunteered to participate, there has been a consistent ideological commitment to the set of notions which make up IR&DT. There has been very little evidence that this ideological commitment has waned. What has also been evident is the astonishing commitment of time and energy to the project. Although it would be difficult to provide hard evidence to substantiate the point, it seems that this maintenance of high energy commitment is related to the positive team membership images participants have of themselves and of this new endeavor. From the beginning there were statements made about how good it was to be part of something excitingly different, how satisfying it was to be in control of an idea and its manifestation, and how heady it was to move out from the usual places in the professional hierarchy.

Theme Six: The Necessity to be Sensitive to Prevailing Conditions When Introducing Change into School Settings

It has been noted that the 1960s came to be known as the "schooling decade" in that a wide variety of innovative practices were developed and proposed for school adoption. Team teaching, nongraded schools, curricula rooted in the nature of the academic disciplines they were meant to provide instruction for, open physical space--these and more were put forth as ways for the schools and the people in them to accomplish more and better purposes. As has been noted in the 1970s (which might be called the decade of school criticism), many, if not most, attempts to change the structure and nature of schooling have foundered.[4] It has only recently been realized that the school as an organization has certain characteristics which mitigate against any but the most carefully and strategically designed change ef-

forts.5 A persistent recommendation regarding changing schools is that the planners must keep in mind the understandings, sensitivities, and histories of those who are expected to carry out the change.

It has been a conscious intention of the Far West Laboratory staff that any intervention into the lives of the participating schools and team members be made with the understanding that negotiation with the teams and their institutions is not only probable but expected and valued. On the few occasions when there appeared to have been a "lay on" from FWL regarding the substance or procedures of the implementation of IR&DT, ample evidence arose from the teams which testified to the necessity for reaffirming the intentionality of coming to mutual agreement based on common goals rather than on a "top-down" management system. Although there have been instances in which it was fiscally necessary to mandate certain deadlines, budget constraints, and such, the dominant mode of operation between individual and institutions has been one of cooperative adaptation based on reasonable understanding. We believe that much of the positive and productive atmosphere which can be found in both IR&DT settings can be traced to this stance.

Theme Seven: The Complexity of the Elementary School Classroom

Only in recent years has attention focused upon the multitude of interactions which occur in classrooms every school day of every school year. Fictional accounts of teachers, from Mr. Chips to Miss Dove, give one the impression that all a teacher needs to accomplish marvels of student progress are a calm, assured manner and a firm hand. Of ocurse, we have always known better but the past decade of research findings has sharpened our awareness of the enormous complexity of classroom life.

The work of the IR&DT teams verifies this complexity from two unique points of view. First, the selection of a research question revealed the almost infinite number of issues which could be studied. In fact, the two teams taken together identified over one hundred potential research questions. Second, when research methodologies were formulated and pilot tested, it was a major problem to maintain the natural classroom environment and still be able to isolate the variable to be studied from the astounding number of other phenomena also present in the room. The complexity, then, provides rich ground for research but also heightens the difficulty of carrying out that research effectively.

References and Notes

1. See, for example, Seymour B. Sarason, *The culture of the school and the problem of change*, Boston: Allyn and Bacon, Inc., 1968.
2. The I/D/E/A study of school change is discussed in several volumes. For an overall picture of the strategy and its consequences, see Mary M. Bentzen and Associates, *Changing schools: The magic feather principle*, New York: McGraw-Hill, 1974.
3. One of the most readable and revealing discussions of elementary schools and the people in them is Philip Jackson, *Life in classrooms*, New York: Holt, Rinehart and Winston, 1968.
4. A systematic attempt to determine the impact of proposed innovations is reported in John I. Goodlad and M. Frances Klein, *Behind the classroom door*, Worthington, Ohio: Charles A. Jones, 1970.
5. Many of the insights regarding promoting effective school change are presented in *Teachers College Record*, February 1976, *77*(3).

THE RESEARCH QUESTIONS

Interactive R&D on Teaching is being implemented at two sites nationally. One is located in Vermont in a rural setting where the teachers are employees of a local school district and the researcher and trainer/developer are members of the faculty of a nearby university. The other is in California in an urban setting where all members of the team are employees of the school district for the city.

Both teams spent their early months identifying the question they wanted to research. This included checking out their perceptions with other teachers and trainer/developers, as well as searching through appropriate literature. In addition, all members of the teams observed in other classrooms in order to determine the degree to which their questions were important and/or could be answered.

The questions identified by each team and their subsequent activities to date are:

Vermont IR&DT Team: "Is there a relationship between mood as perceived by the teacher and his or her supportive instructional behavior in the classroom?"

The Vermont IR&DT team interviewed teachers from the surrounding geographic area, observed in the classrooms of the teachers on the team, explored existing literature regarding affective aspects of the classroom and teaching, and devoted numerous hours to team discussions and deliberations regarding questions and problems of interest. The research effort is seen by the team to be investigatory, and will result in hypotheses rather than providing specific answers to the question. A sample of nine teachers is involved in the data collection activities. The data base includes teacher interview protocols, teacher ratings on a mood adjective checklist, and narrative descriptions of selected classroom lessons. Case studies for each teacher will be prepared.

California IR&DT Team: "What are the events which disrupt classroom instruction, and what are the most effective techniques teachers use to cope with these distractions?"

The California team is currently collecting data to investigate how much instructional time is lost due to distractions, the degree of disjointedness of the instructional activity, and the degree to which a distraction persists after a coping strategy has been utilized. The sample of eight teachers includes the four IR&DT team teachers and four others. Teachers are participating as participant observers, providing daily descriptive information regarding distractions and their coping techniques. Two nonparticipant observers are also collecting data. One is collecting quantitative data regarding the types of distractions that occur and the degree to which each distraction disrupts instructional activities. The other is collecting descriptive (ethnographic) data regarding events, interactions, etc. as they occur in the classroom. Data will be analyzed during the summer and case studies for each teacher will be prepared. A report describing findings over all classrooms is also being written.

Interactive Research and Development on Teaching (IR&DT) is an R&D strategy that places teachers, researchers, and trainer/developers together to inquire as a team into those questions, problems and concerns of the classroom teachers. Decisions are made collaboratively regarding research issues and strategies and the concurrent development of training that grows from the research. Each member of an IR&DT team has parity and shares equal responsibility for decisions made by the team, from identification of the question/problem to the completion of all resultant R&D activities.

Currently, IR&DT is being implemented at two sites in order to study (1) the quality and usefulness of both the research outcomes and training strategies produced; (2) the effects of IR&DT on the participants, on their respective institutions, and on others with whom they interact; and (3) potential policy implications for consideration by NIE in funding future R&D efforts.

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EUDCATIONAL DISSEMINAIION SYSTEMS SUPPORT PROGRAM (EDSSP)

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ABSTRACT

The Educational Dissemination Systems Support Program (EDSSP) has three general objectives: 1) to establish an efficient means for analyzing, monitoring, and communicating the status, needs, and accomplishments of educational dissemination performers, 2) to increase the quality of and access to knowledge pertaining to the educational dissemination and utilization (D&U) process, and 3) to establish a "participatory" capacity for organizing and conducting special studies contributing to improvement of educational dissemination as a regional and nationwide effort.

To accomplish these objectives, the EDSSP is currently comprised of two interrelated program components: 1) Educational Dissemination Studies and 2) Special Studies. The first component contributes directly to the NIE Program on Research and Educational Practice by collecting, analyzing, synthesizing, and communicating information on a) organizational and interorganizational arrangements supporting D&U activities and b) educational practitioner acquisition, assimilation, and use of new knowledge. The Special Studies component, which directly addresses the third EDSSP objective, provides a flexible, quick response capacity to mobilize scholars, experts, and practitioner leaders to examine or conduct priority D&U problem definition, analysis, or other exploratory studies.

BACKGROUND--DISSEMINATION SYSTEMS SUPPORT REQUIREMENTS

As educational dissemination has moved from preoccupation with developing specific programs or functional components to concern with cooperation, coordination, or orchestration among programs, agencies, and activities, and to concern with how to build and nurture more effective capacity, the need for dissemination systems support functions has become more apparent, though not yet fully perceived or understood. In response to the challenge to build more effective D&U capability, NIE has undertaken a multi-faceted program of research, exploratory studies, field-based development, evaluation, support for information resource and linkage capacity building, and related activities. Examination of ongoing and planned NIE and USOE efforts indicated that many important components of a nationwide dissemination structure have been identified and are in place, under development, or in advanced planning. However, several "strategic" dissemination system-building or system-facilitating support functions have been identified that may be unmet or poorly met during the next few years. Generally, many agencies possess, or can develop, needed capability to perform research, evaluation, development, training, or technical assistance functions needed in educational D&U. However, the following strategic support functions are poorly met:

- Data, information, and "intelligence" needed for policy studies and program planning and management are grossly inadequate.
- Research and evaluation results are not effectively analyzed, synthesized, and communicated to key audiences (policy, management, practitioners, research and evaluation staff).
- "Front-end" analyses are rarely performed.
- Conceptual and technical knowledge is deficient and poorly used.

Failure to develop appropriate support capacity in these areas may result in inadequate dissemination planning, ineffective design and management of federally sponsored educational dissemination programs, inefficient coordination among educational dissemination programs or projects, and significant loss of opportunity to develop and communicate the "lessons learned" in educational dissemination. The EDSS Program described below offers a specialized but adaptable mechanism to address some of the more significant system support needs on a long-term basis, and in a way that provides for substantial field input and for responsiveness to particular DRG requirements.

APPROACH

The conceptual structure on which EDSSP is based is the configurational view of knowledge production and utilization proposed by Guba and Clark, which they characterize as a "community-like" model or representation rather than a systems view. They point out that the knowledge production and utilization (KPU) domain can be defined as the full range of educational agencies whose relationships are usually generated by attention to functions other than KPU, but are related in varying ways to KPU functions, and do, or could, "maintain a productive interaction to attain a comprehensive, shared social goal, i.e., improvement-oriented change in education." Among the characteristics that distinguish the configurational view from the systems view are: activity is more decentralized and authority and responsibility among agencies are more negotiated; agency roles are overlapping and status is more coequal, goal orientation is more emergent and idiosyncratic, and motivation is more intrinsic. As such, the configurational view suggests participation in

educational dissemination whereby agencies can share more equally in setting goals, establishing priorities, and providing for reacting to and learning from both the participation and planning.

Given this view of the general character of educational dissemination and the particular support roles that EDSSP proposes, the program must be concerned with participatory RDD&I,* involving dissemination efforts of educational agencies operating at national, regional, state, intermediate, and local levels. The program is committed to improving the modes of communication, interaction, exchange, cooperation, and coordination among the agencies and people involved in dissemination throughout the country. The program not only will share its findings with and receive feedback from many constituencies, but must also be engaged in a variety of cooperative efforts involving agencies and persons at all levels of the various nationwide dissemination activities. The Laboratory's recent and current involvements with the Cooperative Dissemination and Linking Agent Training Project, the R&D Exchange, the R&D Utilization Program, the State Capacity Building evaluation, the National Diffusion Network technical assistance project, the Teachers' Centers Exchange, EBCE Dissemination, and the Study of Information Requirements in Education provide a variety of examples of such cooperative efforts.

In several of these efforts, we have explored the use of a "configurational" approach to individual tasks and studies through the process of planned, repeated interaction among FWL staff, selected experts, educational leaders, and school practitioners in the field, principal investigators of dissemination projects and studies, and NIE or USOE staff during each phase

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* RDD&I--Research, Development, Dissemination, and Implementation.

of our work in which both process and content of each phase are open to discussion and revision.

Program Components

1. Knowledge Analysis/Synthesis/Conceptualizations/Communications

In generic terms, the broad question to which efforts in this component are directed is: What does the concept of knowledge transfer really mean in the context of specific, real situations or environments? The long-range goal is to describe the character of knowledge transfer in reality. The more modest goal is to begin to describe separate features of that character reflected in both individuals and institutions that can provide a foundation for reality-based frameworks for educational dissemination services. This goal will be approached in simultaneous, interactive analysis, synthesis, and conceptualization efforts applied to three types or bodies of information: theoretical/conceptual frameworks, research- and evaluation-based knowledge, and descriptive and statistical information. The latter information includes preliminary descriptions of major dissemination programs, regional and state D&U data, information on D&U contexts, agencies, key persons, programs, inter-organizational relationships, personnel characteristics, functions, and activities, etc. Emphasis is on organization, analysis, and synthesis of existing information, identification of gaps in existing information, and identification of potential sources to fill information gaps.

Examples of Component 1 studies are:

Completed Studies:

- Synthesis of key evaluation studies (Emrick and Peterson).
- Conceptualization and model building (Butler and Paisley; Hood and Cates).

- Identification of resources (Cooperative Project; Rosenau; Hood and Pool).
- Current and potential D&U capacity of schools of education (Lotto and Clark).

Studies in Progress:

- Study of organizational and interorganizational arrangements and linkages for D&U.
- Study of practitioner acquisition, assimilation, and use of new knowledge and practice:
  - design,
  - synthesis of significant literature in various disciplines and paradigms,
  - expert panels.
- Information Base:
  - federal and state files of descriptive information,
  - quantitative data:
    - statistical indicators,
    - exploration cost/outcome studies.

2. Special Studies in Dissemination

The EDSSP Special Studies Component is designed to establish a "participatory" capacity for organizing and conducting special studies contributing to improvement of educational dissemination as a regional and a nationwide effort. The component provides a flexible and quick-response capacity to mobilize scholars, technical experts, and dissemination practice leaders to join with EDSSP staff to conduct problem definition, feasibility or exploratory studies, or other kinds of "front-end" analysis work that may be needed to respond to anticipated requirements or opportunities, or to develop and assess D&U improvement strategies before initiating new efforts or significant modifications in NIE-sponsored D&U interventions.

Examples of Component 2 studies are:

Completed Studies:

- R&D utilization evaluation technical assistance (Blackwell, Pool, and Hood).
- Comparative study of agricultural extension (Rogers).
- Interorganizational arrangements for dissemination (Paul).
- Comparison of information need sensing, R&D system monitoring, RDx feedforward, program evaluation as "intelligence activities" (Blackwell and Hood).
- Survey of large urban school district D&U arrangements (Adams).
- Cost analyses of educational extension services (Paisley, et al.).
- State educational dissemination capacity literature review (Hood).

Studies in Progress:

- Equity of access to educational knowledge.
- Summer workshop on implications of the Configurational Perspective for regional and state coordination of D&U.
- Development of state profiles on educational dissemination (Dissemination Forum--"Know the State of Your State").
- Planning and support for NIE-L/C Conference on Research on Dissemination and Utilization.

ISSUES AND PROBLEMS

1. An important methodological concern is the exploration of alternative methods of knowledge organization, analysis, and synthesis in order to select the method most appropriate for examining different bodies of information (e.g., descriptive, conceptual/theoretical, research/evaluation), or considering different research questions. Among the approaches being considered are:

the case survey method used by Yin and Heald (1975, 1976) to analyze dissimilar cases of technological innovations in state and local agencies, the consensus/Delphi approach used by Glaser for both problem definition and synthesis/transformation of information, and the examination of a single set of studies by scholars representing different disciplines and perspectives.

2. A corollary problem is related to dissemination of synthesis results. An important EDSSP goal is to identify and address the particular concerns of different audiences (e.g., policy, management, research/evaluation). However, although general distinctions among the audiences can be made rather easily, identification of key participants/recipients in each audience remains somewhat problematic. Too often we realize that study results are distributed to the same fairly small group of individuals who comprise the "invisible college" with whom we have the most contact. Thus, the impact of potentially significant results is limited to a narrow range of individuals and the potential for useful feedback and critique is lessened.

3. Another aspect of the dissemination problem is the translation of study results into formats and language appropriate for the different audiences. Although we have attempted to prepare multiple versions of some reports and/or executive summaries for different audiences (e.g., management summary, policy summary), we are not satisfied that the different versions adequately interpret study findings for the concerns of the particular audience addressed. Improvement of our "translation" is tied closely to improvement of identification of appropriate recipients in each audience. In order to receive feedback about the usefulness of both the study results and translations, each audience must be adequately represented among the recipients.

4. An additional issue is the selection of dimensions and indicators along which intra- and inter-organizational D&U arrangements and linkages

can be examined. A preliminary review of the literature suggests that for intra-organizational arrangements and linkages, the three dimensions used by Guba and Clark (1977) in their analysis of knowledge production and utilization (KPU) in schools, colleges, and departments of education (SCDEs) also are applicable to the examination of D&U activities. The three dimensions are: 1) mission and goal posture of the agency, 2) organizational structure(s) and arrangements in support of explicit or implicit D&U mission and goals, and 3) process/product indicators of D&U activity. Using these same dimensions, Lotto and Clark (1978) re-examined data gathered for the KPU study to analyze the present and potential D&U capacity of SCDEs, and the dimensions appear applicable to analysis of D&U activities in other types of organizations (e.g., SEAs, LEAs, ISAs).

On the other hand, dimensions and indicators related to inter-organizational linkages have yet to be specified. However, in general both formal and informal relationships and communications between organizations and organizational representatives will be considered. Also to be established are criteria for distinguishing among various types of linkages, e.g., degree or strength of linkage or coupling (loose versus tight), nature of coupling (continuous versus sporadic), coupling time frame (permanent versus temporary).

5. A larger, continuing EDSSP concern is the one to which this conference is addressed, namely, increasing our awareness and understanding of current D&U research efforts in other laboratories and centers. Increased and improved contact and interaction with related programs and projects is essential to the successful application of the configurational approach to our own work as well as potentially useful to others in sharing both substantive and methodological information from our efforts.

EXAMINING THE CONTINUING EFFECTS OF INNOVATIVE INSTRUCTIONAL MODELS

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Background

For the last few years, the Field Services Group at the Learning Research and Development Center has been interested in examining innovative program impact within the broad domain of school change processes. Our position is that program effects should be measured by assessing the impact of the program on the total school environment, which includes effects on curriculum, teachers, students, administrators, community, etc. This form of research asks the question: What, if any, impact does the experience with the implementation of an innovative instructional model have on the many persons and agencies involved?

Our current research has been focused on the impact of the innovative instructional model on the attitudes and practices of teachers. The subjects of our research are teachers from settings where an innovative instructional model was implemented with administrative mandate and external support who are currently in settings where the model is not is use. We have conducted systematic follow-ups of these teachers to determine which, if any, aspects of the innovation the teachers have retained and continue to use in their current situations.

Studies of school change, and indeed of change in general often stop short of this important program effects area. Frequently those studies which describe a return to site to determine what remains of an innovation stop with an examination of the district level adoption patterns (e.g. Carlson, 1972). If the innovation does not show as an item on the budget, the conclusion is drawn that the innovation is no longer present and that change in the system has not occurred. Our position is that adoption rate studies are only a small part of the problem. We contend that it is the individual teacher who is the actual consumer -- the ultimate user of the innovation and as such, research needs to take the teacher as the

unit of analysis for such instructional innovation follow-up studies. Treating the teacher as the unit of analysis is one of the ways in which we are measuring program impact on school change.

In 1977 we reported the results of a study conducted one year after a district level decision was made to withdraw support for two innovative models (Mitroff & Boston, Program Residuals or Did They Throw Out the Baby With the Bath?). Briefly, the results indicated that the majority of the teachers were either continuing to use the model components as they did with program support, or continuing to use them but with adaptations to current situations. The study also probed such issues as the kinds of adaptations which were being made, the aspects of the experience which were most missed, and conversely the aspects which were least missed.

The study indicated that there were indeed continuing effects which were worthy of investigation. It also raised many additional questions.

Description of Current Research

Our current research is a continuation and extension of the same line of work. At the present time we are conducting two companion studies on the continuing effects of the innovation experience on the attitudes and practices of classroom teachers.

The first study involves a return to the setting of the 1977 report. In that case we questioned teachers who had had support withdrawn for the innovative models by their district. The teachers were, for the most part, still teaching in the same schools and often in the same classrooms, but were required to shift from the innovative models to the mainstream curriculum. At the time of our study they had been out of the innovative models for one year. We have just initiated a return to those teachers who have now been out of the innovative models for three years.

The second study involves a different group of teachers. In this case we identified teachers who were at one time a part of the innovative models but have since left the model affiliated schools for personal reasons, i.e., transfers, moves, job changes, etc. This population differs from the other group in that the teachers did not have access to surplus materials, they were not surrounded by a peer group who also knew the innovative model, nor were they subjected to the negative effect that is frequently generated by support withdrawal. We are currently investigating the impact of the innovative experience on their practices in their current settings.

Approach

The approach of this study is descriptive field research through the use of the survey method. Data collection sources include mail questionnaires, personal interviews, telephone interviews, and classroom observations. In the first of the two studies mentioned above (the follow-up after three years without program support) we are utilizing a series of successive rounds. The first round is a general questionnaire. The returns will be analyzed and the respondents classified. Then a sample of persons from the categories will be drawn for the second and third round which will involve individual interviews and classroom observations. In the second study we have mailed over 100 questionnaires and over 50% have been returned.

We are addressing four main objectives and related research questions. They are listed in the table below.

Table 1

Objectives and Research Questions
for Continuing Effects Study

Objectives	Related research questions
1. To determine what aspects of the model are being continued/transferred; which ones are being adapted; and which ones are <u>not</u> being continued/transferred.	a. Among those aspects which are not being continued, which ones are being rejected and which are not transferrable? b. What factors enhance efforts to transfer? c. What factors inhibit efforts to transfer?
2. To describe characteristics of persons who are continuers, adapters, and discontinuers.	a. Is transfer related to experience in the model?. . .to experience in general? b. Is transfer related to grade level? c. Is transfer related to educational level? d. Is transfer related to general involvement in the field?
3. To document with descriptive examples some of the adaptations which are being made.	a. Are the adaptations which teachers describe really adaptations? Do they become misadaptations or mutations in the process of being transferred? b. What is the range of adaptations from simple (materials use) to complex (require knowledge/use of principles of curriculum)?
4. To determine if "second stage diffusion" is occurring, i.e., from the former FT person to people in their current settings.	a. What is the level of awareness of key persons in the second stage setting? b. What are some of the attitudes of key persons? c. What types of things can be diffused in a second stage setting?

The study can be conceptualized from both a change perspective and a research utilization perspective. The remainder of this paper offers a very brief discussion of each perspective and some of the issues raised by each one. We have tried to state these perspectives in a provocative manner in the hope that discussion and debate can be stimulated.

The Change Perspective

The problem falls generally within the area of school change but cannot be captured by any of the current models or theories of change. Nevertheless, the literature on change can be used to help describe the situation. The Learning Research and Development Center Individualized Instructional Model (LRDC-IM) is the best described as the result of the research, development and diffusion (RD&D) approach to educational improvement. Clark and Guba (1967) define this approach as a vehicle to aid in "bridging the gap between theory and practice" in education. A major characteristic of this approach is that it emphasizes the perspective of the "developer" of the innovation and not the perspective of the user. In this sense such models are not collaborative and they do not arise out of the needs felt by the practitioners. Rather they arise out of the collaboration between researchers and developers who seek to find ways to translate research findings into inventions and designs.

In the case of the LRDC-IM, the model was developed through such collaboration over several years. It was tested and revised in developmental schools. The model requires a dramatic change from the traditional role of the teacher. Teachers learning to implement the model must not only learn the new curriculum but they must also learn new teaching and management techniques. Because the model involves several curriculum areas and the total classroom environment, it must be classified as a complex innovation.

The next stage of the RD&D model is diffusion. In our situation the LRDC-IM was "diffused" under the auspices of National Follow Through (NFT). NFT was, of course, conceived of as a vehicle for the field testing of some of the major innovative educational models which were available at the time of its inception (the "planned variation" approach). Although NFT is undoubtedly one of the largest efforts ever to put innovative practices into schools, it was not seen as a planned change effort which would have a sustaining impact on the school systems. Therefore, it was not the concern of those who were FT model sponsors to develop or to evaluate the plans by which they implemented the classroom models in terms of their success as change efforts. The concern was to get the model operational so that the model itself could be monitored and evaluated in terms of the academic progress of the children.

Obviously we are not saying that the models were not expected to cause change. Indeed the impact of the models on students has been and is still being evaluated. However, the notion of sustained change in the practices of teachers was not a major issue.

Under such conditions any continuing impact of the models on the schools or the teachers and administrators can be defined as "unintended consequences". From the change perspective we are examining such consequences.

One of the implications of this work is that innovations can be implemented under conditions which do not meet some of the requirements of the planned change perspective and in fact under conditions which violate some of those requirements and still result in the users internalization and continued use of the change. Does this suggest that some of the prescriptive models of change are too rationalistic or more rationalistic than they need to be?

The research utilization perspective

The LRDC-IM has already been described as a product of intensive research and development. Many of the instructional strategies, curriculum principles, management techniques, etc., can be directly linked to a body of supportive research.

One of the problems of research utilization has long been the problem of translation. That is, the difficulty of finding a match between the needs of users and the findings of research. And yet we know that in order for research to be utilized it must satisfy some felt need of the user. In the case of education we suggest that it is often the case that the user cannot define his needs in such a way that the researcher can tackle the "real" problem and in fact the users themselves may not know what the "real" problem is. Our line of research has the interesting possibility of helping to tackle the problem from the opposite end. That is, finding out what aspects of the innovation teachers themselves select and continue to use can suggest to the R&D community what some of the needs are, what aspects are most valued by teachers, which aspects warrant greater development, and which aspects are generic enough to change teacher behavior in lasting ways.

RESEARCH NEEDS IN DIFFUSION, CHANGE, AND INFORMATION SYSTEMS

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RESEARCH NEEDS IN DIFFUSION, CHANGE, AND INFORMATION SYSTEMS

William L. Hull, Joel H. Magisos, and Norman M. Singer

The research problems and issues identified in this paper spring from operational programs at the National Center for Research in Vocational Education conducted since 1965. They are offered as a point of departure for discussion of dissemination and utilization research needs. This paper is organized to reflect the background and current diffusion, change process R&D, and information systems activity of the National Center which gave rise to researchable problems and issues. These are illustrated in Figure 1 and explained in the text.

Background

The diffusion of R&D-based products and information by the National Center began in typical fashion: products and reports were submitted to ERIC, initially distributed to prime audiences, and sold on a cost recovery basis. When it became apparent that ERIC accessibility and complimentary distribution did not result in diffusion, extensive printing was discontinued and the resources redirected toward dissemination planning and awareness activities. Cost recovery capability was improved to accomodate the increased demand for a growing number of products.

Early studies on opinion leadership in vocational education led to the development of a multi-year change process R&D program. This program was based upon a conceptual framework arising from

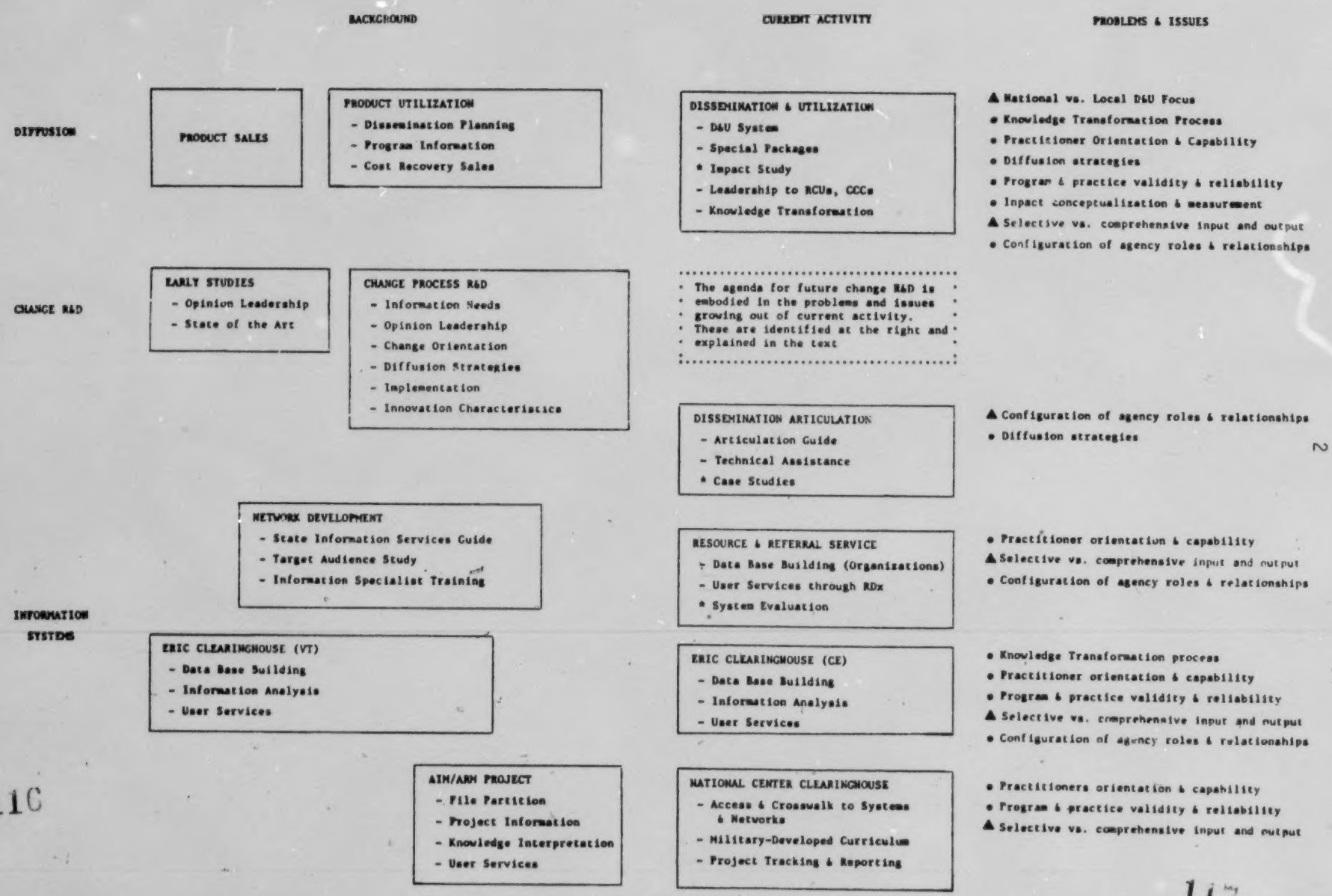
BACKGROUND
CURRENT ACTIVITY
PROBLEMS & ISSUES
DIFFUSION
PRODUCT SALES
PRODUCT UTILIZATION
- Dissemination Planning
- Program Information
- Cost Recovery Sales
DISSEMINATION & UTILIZATION
- D&U System
- Special Packages
* Impact Study
- Leadership to RCUs, CCCs
- Knowledge Transformation
▲ National vs. Local D&U Focus
• Knowledge Transformation Process
• Practitioner Orientation & Capability
• Diffusion strategies
• Program & practice validity & reliability
• Inpact conceptualization & measurement
▲ Selective vs. comprehensive input and output
• Configuration of agency roles & relationships
CHANGE R&D
EARLY STUDIES
- Opinion Leadership
- State of the Art
CHANGE PROCESS R&D
- Information Needs
- Opinion Leadership
- Change Orientation
- Diffusion Strategies
- Implementation
- Innovation Characteristics
The agenda for future change R&D is embodied in the problems and issues growing out of current activity. These are identified at the right and explained in the text
DISSEMINATION ARTICULATION
- Articulation Guide
- Technical Assistance
* Case Studies
▲ Configuration of agency roles & relationships
• Diffusion strategies
NETWORK DEVELOPMENT
- State Information Services Guide
- Target Audience Study
- Information Specialist Training
RESOURCE & REFERRAL SERVICE
- Data Base Building (Organizations)
- User Services through RDx
* System Evaluation
• Practitioner orientation & capability
▲ Selective vs. comprehensive input and output
• Configuration of agency roles & relationships
INFORMATION SYSTEMS
ERIC CLEARINGHOUSE (VT)
- Data Base Building
- Information Analysis
- User Services
ERIC CLEARINGHOUSE (CE)
- Data Base Building
- Information Analysis
- User Services
• Knowledge Transformation process
• Practitioner orientation & capability
• Program & practice validity & reliability
▲ Selective vs. comprehensive input and output
• Configuration of agency roles & relationships
AIM/ARM PROJECT
- File Partition
- Project Information
- Knowledge Interpretation
- User Services
NATIONAL CENTER CLEARINGHOUSE
- Access & Crosswalk to Systems & Networks
- Military-Developed Curriculum
- Project Tracking & Reporting
• Practitioners orientation & capability
• Program & practice validity & reliability
▲ Selective vs. comprehensive input and output

Figure 1. Diffusion, Change, and Information Systems at the National Center for Research in Vocational Education

earlier literature review. It included surveys of information needs of vocational education and studies of opinion leadership, change orientation, diffusion strategies, implementation, and innovation characteristics in vocational education. While the change process R&D program was largely theory based and organizationally independent, it drew contextual and operational perspective from the diffusion and information systems activities of the National Center.

ERIC Clearinghouse development and operation has been the keystone of the National Center's information systems program. The National Center was involved in early efforts to develop the indexing language, computerize the document collection, conduct information analysis, and provide user services. AIM/ARM, an ERIC-compatible supplement to ERIC, was developed into a full-fledged project to meet vocational education information needs. Concurrently, the National Center linked with state research coordinating units (RCUs) to disseminte R&D-based products and information to local users. This interface continues to feed dissemination network development today.

Current Activities

Diffusion

The current diffusion program of the National Center combines five USOE-sponsored projects, placing programmatic emphasis on systematic, continuous approaches to dissemination and utilization of nationally-significant products and information from diverse

sources. Major emphasis has been on collaboration with other organizations, principally the state research coordinating units (RCUs), regional curriculum coordination centers (CCCs), and state liaison representatives (SLRs) for curriculum. A National Planning and Implementation Conference in September 1978, involving sixty individuals from thirty-three states, gave the National Center the mandate to define a comprehensive program improvement configuration for vocational education. Participants agreed to cooperate in 1) further development of a nationwide network of D&U collaborators, 2) coordinated study of vocational education R&D impact and 3) articulation of national, regional and state information services.

The D&U system project makes criteria-based selections of the best available R&D-based, nationally-significant products and information for intensive D&U activities. D&U strategies are developed and implemented collaboratively with state and regional agencies. Another project prepares and distributes special packages of diverse resources for selected new and developing occupations. A third project provides leadership through training and liaison to RCUs and CCCs. Long-term staff development programs are projected in cooperation with these groups. Fourth, a knowledge transformation project will yield 16 papers this year in the National Center's themes: planning, evaluation, sex equity, and special populations. Heightened emphasis is now being given to knowledge transformation and communication through a wider variety of media forms. A study to determine the distri-

bution, utilization, and impact of vocational education R&D products and information is another project in the National Center's on-going diffusion program. With instrument development underway, data collection is being planned collaboratively with the RCUs.

Change Process R&D

Formal support of Change Process R&D terminated in 1976 and R&D effort is currently directed at operational problems in diffusion and information systems activities at the National Center. These include the Impact Study in the USOE-sponsored Dissemination and Utilization program, case studies in the NIE-sponsored Dissemination Articulation project and the Evaluation component of the NIE-sponsored Resource and Referral Service. These activities are indicated with an asterisk in Figure 1.

Information Systems

Information system activity at the National Center currently includes three operating programs. Each program has a specific scope and purpose, which contributes to a more comprehensive information resource base nationwide.

ERIC Clearinghouse on Adult, Career and Vocational Education (ERIC/CE). One of 16 clearinghouses in the NIE's ERIC system, ERIC/CE has responsibility for building the document collection, conducting information analysis, and providing user services in its scope area.

National Center Clearinghouse. A function of the USOE contract for a National Center, the Clearinghouse provides vocational education with 1) access to various dissemination systems and networks, 2) availability of military-developed curriculum for occupational education, and 3) a tracking system for vocational education R&D projects.

Resource and Referral Service (RRS). One of the organizational components of the NIE's Research and Development Exchange (RDx), RRS has responsibility for 1) building a data base about R&D organizational resources, 2) providing user service on priority problems through other RDx components, and 3) evaluating various aspects of its own products and services.

Through an NIE-sponsored project, the National Center is endeavoring to help RCUs articulate their activities with other information dissemination programs in the states. An articulation guide will be developed, technical assistance given and case studies conducted.

Problems and Issues for Research

The following issues are suggested for discussion as potential topics for a research agenda in educational Dissemination and Utilization. They are not mutually exclusive, and no attempt has been made to determine the amenability of these ideas for further research.

1. A discrepancy exists between national priorities for the dissemination of R&D results and the needs perceived by local users.

This issue encompasses questions of local concerns, regionalism, and nationally designated priorities as a basis for setting program improvement goals. Although national priorities clearly seem to be expressions of widespread, commonplace needs, local professionals are nevertheless confronted by unique, site-specific pressures. Very often national priorities are perceived as non-responsive to locally-perceived needs for D&U assistance. At present, no reliable means exists for sensing the dissemination needs of local practitioners nationwide. Nor is enough known about how to communicate with local practitioners in ways which heighten the significance of national priorities in relation to their own priorities and ongoing practice.

2. Processes of knowledge transformation and communication need further development.

The intellectual processes involved in transforming knowledge from one form to another needs further development. Processes such as compaction, interpretation, application, analysis, synthesis, and evaluation have been identified but guidelines have not been developed on how and when to use them. The media forms and channels for communicating transformed knowledge also need extensive examination, possibly in an experimental format.

3. Practitioner capability to obtain readily and use R&D-based information and practices needs strengthening.

The problem of poor access to educational products, information and practices for professional educators, rural people, equity audiences, and the general public needs careful study. Some practitioners desire information but lack ready access to it. Others do not value accessible information and hence do not seek it. Further, there seems to be limited relevance of much educational research to the needs of teachers for help with their instructional problems, of administrators for advice on improved management, or of policymakers for information to guide decision on education. Insufficient access to relevant, applicable information and products seems to result in failure to use knowledge derived from R&D and outstanding practice. In rural areas and in schools serving minority persons and poor persons, the problem is especially acute. The question of how to reach the general public in order to create a conducive climate for program improvement also emerges in this research problem.

4. Strategies for the diffusion of innovations have not been validated.

Despite conceptual frameworks and isolated research studies, no cumulative predictive evidence exists on the questions of when to use a particular dissemination strategy, e.g., demonstration, technical assistance, or mass distribution, in the diffusion of an innovation. Conventional wisdom prevails on an instance-by-instance basis in the diffusion of innovations. Persons formula-

ting strategies are forced to rely on their own experiences and perceptions of the immediate implementation context. Empirical knowledge of strategy effectiveness in a variety of settings is needed. Diffusion specialist should be able to predict with some degree of accuracy the probable effects of using selected diffusion strategies with client audiences.

5. Information about exemplary programs and practices is not valid or reliable.

The present level of technology used in the dissemination of information about exemplary programs and practices places the responsibility for use of these practices upon the client adopter. Very little information is provided on the likely effects of using the exemplary practice in new or different settings. The person wanting to use the practice is likely to be influenced principally by the personality of the exemplary program director or impressed by results attributable to the unique characteristics of the development site. This condition places the disseminator in the untenable position of recommending practices for which information is inadequate. A program is needed to standardize and upgrade the information obtained from exemplary programs and practices for the benefit of prospective adopters.

6. Methods of conceptualizing and measuring the impact of R&D based information and products have not been developed.

There is little evidence of the impact of R&D information and products. The literature is replete with complaints about the lack of documentation of impact. Tools exist for the design

and conduct of evaluative studies, but the conceptual base for the measurement of impact of R&D-based information and products does not exist. Persons concerned withthe effectiveness of diffusion strategies and program improvement activities should investigate different ways of conceiving and measuring the impact of R&D-based information and products.

7. Selective versus comprehensive input to and output of information systems needs resolution.

A classical paradox always arises when information resource systems or information user services are being designed. Should the information system be selective or comprehensive in its development of the data bank? Should the user service make selections for its clients or give the client everything available with no caveats? Considered together as a cost effectiveness issue, the resolution can be based on collection development and maintenance requirement (cost) versus the use of the system (benefit).

8. The configuration of roles and relationships of public and private agencies active in D&U needs clarification.

Federal, state, and local public support of educational program improvement has given rise to several nationwide D&U programs with a myriad of state and local variants. The complaint of duplication is not without cause. A major effort is needed to articullate the diverse and sometimes overlapping roles of various agencies in D&U. This has vertical (i.e., Federal, state and local), substantive (e.g., general, vocational, or special education), organizational (e.g., NDN, capacity building program, ERIC, RDx,

etc.), and public vs. private dimensions. Approaches to achieving coordination of effort among dissemination and utilization agencies are needed.

The problems and issues identified in this paper were derived from a background of experience and current activities in dissemination at the National Center. But their foci are generic and their applications pervasive throughout education. The problems and issues are rooted in the need for better ways to improve programs in education. Carefully designed and coordinated R&D on dissemination and utilization problems and issues should lead the way to improved educational programs. The National Center plans to continue its program improvement activities, bringing to bear its resources for diffusion, change, and information systems.

STUDY OF SCHOOL IMPROVEMENT PROCESSES

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Background

The RBS Board of Directors recently approved a new institutional mission. The new mission is to help elementary and secondary schools in this region improve their educational programs in reading, writing, mathematics, career preparation, and citizen education. To accomplish this mission, the laboratory plans to provide R&D support to educational agencies in the region that strengthens their efforts to improve educational programs. These improvements in educational programs are aimed, ultimately, at increasing student learning.

The laboratory's approach to achieving its mission involves efforts to assist the state education agencies (SEAs) in Pennsylvania, New Jersey, and Delaware implement their statewide improvement programs (e.g., Thorough and Efficient Education in New Jersey). Helping SEAs to implement their statewide programs was selected as an appropriate approach because of a mutually perceived compatibility between the needs and interests of both RBS and the SEAs. These needs and interests are summarized here in terms of a few major points.

- Statewide improvement efforts are presently underway in each state in this region. Cooperation with these existing efforts ensures that RBS will not be engaging in competitive or irrelevant activities in the region.
- The primary goal of these state efforts is to increase student learning by improving local educational programs, especially basic skills, career preparation, and citizen education programs. RBS shares the same goal, and has expertise in these subject-matter areas.
- State efforts are a major force for improvement; they involve all levels of the educational system; and they serve as a focus for allocation of resources. RBS needs a vehicle for reaching a large number of schools; participation of all levels of the educational system; and resources to support school participation in improvement efforts.
- State improvement efforts feature a systematic process for improving local educational programs (i.e., set goals, develop measures, administer statewide tests, analyze results to identify student needs, encourage schools to plan and implement improved educational programs). This type of systematic, data-oriented approach to school improvement is consistent with RBS' R&D orientation.

The principal reason for working with existing state improvement programs is that RBS can supply assistance to the SEAs in an area of critical importance. Each state has developed workable procedures for defining state goals, measuring student performance on these goals, and analyzing performance results to identify student needs. However, a critical problem for all statewide efforts in this region, as well as other state programs across the nation, is their inability to provide schools with effective procedures and materials to plan and implement improved local programs to correct the student deficiencies that have been identified. In other words, existing statewide programs clearly identify the problems or needs of schools, but are unable to provide clear-cut directions for solving these problems. RBS can help with the development of procedures and materials that local schools can use to plan and implement program improvements.

The strategy RBS plans to use in developing these procedures and materials for local school improvement emphasizes cooperative development with a pilot sample of schools, the use of research-based techniques, and a focus on instructional improvements at the classroom level. Cooperative development is defined as a collaborative partnership with pilot local schools in the design, field testing, and revision of materials that can be used effectively in the local sites and subsequently transported to other schools throughout the state. The use of research-based techniques implies a systematic, rational approach to school improvement that includes data-oriented decision-making processes and uses R&D knowledge and materials. A focus on classroom instructional improvements is defined as a concentration on changes in the instructional program that is actually delivered to students at the classroom level.

The work of RBS in cooperation with educational agencies in this region provides an important setting for field research on the process of school change and improvement for several reasons. First, the laboratory is devoting very substantial

resources to the long-term effort to help schools improve, and careful study and assessment of the use of those resources is warranted. Second, the effort involves direct cooperation with statewide improvement programs, which are a major force in education both regionally and nationally. Hence, the laboratory's work offers an unusual opportunity to study this important influence in education. Third, it involves all levels of the educational system, three different states, a number of high priority subject-matter areas, and urban, suburban, and rural schools, and the interaction of these is deserving of study. In sum, this effort offers a unique setting for the study of a number of important factors and influences on school change and improvement.

The Proposed Study

The overall purpose of the proposed study is to examine the everyday operation of schools and how these operational patterns affect, and are affected by, the RBS strategy for school change and improvement. More specifically, the study is aimed at meeting three objectives:

- To describe the normal operation of schools in terms of selected context variables, and how the school context changes over time.
- To describe the plannned RBS change strategy, and how it changes as it is implemented in schools.
- To study the impact of the school context on the change strategy, and the influence of the change strategy on the school context.

Objective 1: Describe the School Context

The first study objective is to describe the everyday operation of schools in terms of selected context variables and to examine how the school context changes over time. Meeting this objective requires that two basic study questions be answered:

- What is the context of the schools participating in the laboratory's overall effort to improve educational programs?
- How does the school context change over time?

There are at least two commonly held views of schools. They are viewed by some as rational systems; by others, as natural systems. From the rational systems perspective, schools are assumed to have clear goals that facilitate the identification of problems to be solved through innovation. Further, they are regarded as internally integrated organizations where once a decision is made to adopt an innovation, actual implementation is relatively nonproblematic. Another assumption underlying the rational systems view is that schools are relatively closed systems; hence, the impact of "extraneous factors" such as community interests is minimal. An alternative view of schools is that they are natural systems where: goals are ambiguous and vary from person to person; the coordination of activity is problematic, so implementation may be difficult; and a variety of environmental intrusions affects the nature and effect of the activities carried out (Corwin, 1974; Thompson, 1967).

Identification of the natural systems view initially suggests the need to adapt it both for studying schools and planning school change. However, the natural and rational systems views are not mutually exclusive. Each can be considered as endpoints on a set of dimensions that describe schools. These dimensions include school goals, boundaries and environment, control, and coordination. The rational system is characterized by clear goals, strong boundaries, firm control of staff, and substantial internal coordination. In contrast, the natural system has ambiguous goals, permeable boundaries, limited staff control, and poor coordination.

The identification of school context dimensions has at least three advantages. First, it allows for determination of school-to-school variation rather than forcing the researcher to examine schools as examples of a single type. Second, it allows for the possibility that schools may be more rational in some ways and more natural in others. Third, it facilitates the identification of aspects of the school

context that are the most critical determinants of the nature and effects of the school change process.

The design for this aspect of the proposed study involves two stages of activity. First, the school context in a sample of schools participating in the overall RBS change effort will be described, primarily in terms of variables related to the four dimensions discussed above: goals, boundaries and environment, control, and coordination. These data will be used to develop profiles of the routine operation of each school prior to introduction of the RBS change strategy. Second, changes in the operational patterns of the school will be examined periodically throughout the school year to trace context changes over time.

Objective 2: Describe the RBS Change Strategy

The second objective of the proposed study is to describe the planned RBS change strategy and how it changes as it is implemented in schools. To meet this objective, two basic study questions need to be answered:

- What is the planned RBS change strategy?
- How does it change over time?

The design for this aspect of the proposed study also involves two stages of activity. The first stage focuses on developing an understanding of the planned strategy for school improvement prior to its use in schools. Three specific elements of the overall strategy that represent some of its basic underlying principles were selected for intensive study: cooperative development, the use of research-based techniques, and a focus on instructional improvement. The second stage examines how the planned elements of the strategy are actually implemented. This stage focuses on describing improvement activities in schools that are related to a particular element of the strategy (e.g., cooperative development) and changes in these activities over time.

Objective 3: Study the Interaction Between School Context and the RBS Change Strategy

The third objective is to study the impact of the school context on the change strategy, and the influence of the change strategy on the school context. This objective is the focal point of the proposed study. While descriptive studies of context and strategy have value in their own right, it is the investigation of possible interactions between the two that is of prime concern. The major study questions to be raised here are:

- How does the school context affect the change strategy?
- How does the change strategy affect the school context?

To be specific: What happens when a "rational," research-based, data-oriented change strategy is introduced into natural educational settings that are "loosely coupled"? What school context variables influence the extent to which the change strategy is implemented as planned, the nature of the school improvement activities that occur in each school, and the changes in these activities over time? What are the intended and unintended effects of the change strategy on the school's goals, coordination and control structures, and relations with the community and district office?

The design for this aspect of the study involves an analysis of the relationships between the data on school context variables and change strategy elements. This analysis is designed to search for important context variables that might affect how the change strategy is implemented, and critical features of the change strategy that might influence context variables.

This brief description of research objectives and questions may create a false impression that this proposal describes a structured, experimental research study involving precisely defined variables, highly valid and reliable measures of these variables, and statistical tests of defined hypotheses about school change. This

is not the case. Our review of the literature and our own experience suggest that much exploratory work is needed before such a research study is possible. The following section describes our approach to conducting exploratory work in this area.

Approach

This section describes the overall approach that will be followed in order to meet the objectives of the proposed study. The approach is characterized by an evolutionary design, in-depth and comparative data collection, and a focus on the initiation phase of a school change effort. Each of these characteristics is described briefly below.

Evolutionary Design

The laboratory's work to help schools improve their educational programs will be a five-year effort. The plans of the Field Study Project call for an evolutionary study of this long-term effort. "Evolutionary" refers to the fact that work done in the initial stage of the proposed study will contribute to and guide work undertaken later.

The first 18 months of the proposed study, which has been designated as the exploratory phase,* will include description and analysis of the change process in a sample of schools in the tri-state region. This phase will result in improved definitions of variables important to consider in studies of school change, better measures of these variables, and hypotheses about relationships between school context and the process of change. In addition to these outcomes, all of which will provide a foundation for future work, the initial phase will yield other products

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*Defining the exploratory phase as the first 18 months of the study was a somewhat arbitrary separation of a continuous research effort. This definition is based, in large part, on NIE's requirement that regional labs and centers submit proposals for future work following the current 18-month contract period.

that are useful in their own right--descriptive information and analyses that will provide a better understanding of schools, of change strategies, and of the interaction between the context of schools and strategy elements. Further, the variables and measures developed may be useful in school change research conducted elsewhere.

In-Depth, Comparative Data Collection

Data collection during the first 18 months will be carried out through intensive contact with from six to nine schools. This approach is a compromise between two existing sets of school change research--one that provides relatively limited data on a large number of schools and another that presents extensive documentation of single cases. In-depth, comparative data collection permits both intensive examination of the change process and comparisons among schools.

Focus on Initiation

A variety of stage models exists to categorize the course of events in the change process. Many of these are summarized by Hage and Aiken (1970). Researchers in the area of school change (e.g., Brickell, 1961; Berman & McLaughlin, 1975; Giacquinta, 1973) have seemed to settle on a three-stage model, where the first stage is variously called initiation or mobilization, the second is referred to as implementation, and the last is continuation, institutionalization, or routinization.

During the coming 18 months, the proposed study will focus on the initiation of change in schools. All three of the RBS component groups (basic skills, career preparation, citizen education) will concentrate on helping schools plan innovations in the coming school year. Only one of the groups plans to begin classroom implementation activities during 1978-79, and these activities will be minimal.

It should be noted that the time period constituting initiation for the school is actually an implementation period for the change strategy. That is, as soon as the change practitioner comes into contact with the school, he or she is having an

impact and the change strategy is being implemented even through the school is still in the planning stage. The first 18 months of the proposed study, then, will focus on the initial implementation of the change strategy and on initiation activities in the schools.

Problems and Issues

Several problems and issues are important to the success of this project. These are outlined here.

1. Three RBS groups (e.g., the basic skills team) are to work with schools to improve classroom practices. Each group will have its own documentation and formative evaluation activities. How can the Field Study Component carry out its work without (a) being perceived as evaluating the work of other RBS groups, (b) duplicating the documentation work of other RBS groups, and (c) jeoprodizing the cooperative rapport established by other RBS groups with school staff?

2. What can the Field Study Component provide to other participants (e.g., other RBS groups, state education agency staff, intermediate service agency staff, and school staff) which might be seen as useful on one hand but which would not compromise the project's integrity on the other?

3. How can Field Study Component staff obtain quick and easy access to instruments developed by others?

4. How should repeated observations on the same school variable over a period of time be analyzed when (a) the number of observations at a school site may be small (e.g., 10), and (b) parametric test assumptions are not valid (e.g., independence of observations)?

5. Given the sensitivity of the data to be gathered and analyzed, we are unclear about all of the implications of informed consent, confidentiality of information, and "sunshine" provisions.

6. At this time, the technical requirements to scale, weight, and transform qualitative information into forms suitable for within and across site analysis are problematic.

7. In order to demonstrate the value and clarity of the research to NIE we have been very specific about, for example, the variables we believe to be appropriate, their definitions, etc. We are concerned that such specificity may be perceived in ways that will constrain flexible adaptation of these concepts to the realities of school settings.

8. It is difficult to conceptualize a long term study (5 years) and to secure long term cooperation from schools when NIE provides only an 18 month commitment.

THE APPLICATION OF THE CONCERNS-BASED ADOPTION MODEL (CBAM) TO BILINGUAL EDUCATION

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THE APPLICATION OF THE CONCERNS-BASED ADOPTION MODEL (CBAM) TO BILINGUAL EDUCATION

The Division of Bilingual and International Education of the Southwest Educational Development Laboratory is currently involved in research on the development of personnel for bilingual education programs and the potential applicability of the Concerns-Based Adoption Model (CBAM) to bilingual education. The development of effective school personnel in bilingual education has been a major concern of educators at the local, state, and national levels and the lack of trained staff has been cited as an important factor influencing the implementation of bilingual education programs (Rand Corporation Study, 1977). Concern for a more effective staff development program for bilingual education at the state level was brought into focus in the spring of 1977 when the Texas Education Agency contracted with SEDL to investigate current practices in staff development for bilingual education and to make recommendations for a plan of action that would result in a more effective staff development program for existing bilingual education programs in Texas.

At the time it began work on the Survey of Bilingual Education Staff Development in Texas (SEDL, 1977), the staff of the Division of Bilingual and International Education of SEDL embarked on an intensive program of study of current trends in staff development across the nation, paying particular attention to the implication of these trends for the training of teachers to work in a bilingual setting. A thorough review of the literature was undertaken in four related areas: staff development, innovation, models of bilingual education, and implementation and effects of bilingual education. Several conclusions were drawn from the literature review, an important one being that a concise and integrated definition

of the models of bilingual education, both theoretical and extant, is needed in order to determine the parameters of the educational innovation in the process of implementation in the public schools under the rubric of bilingual education. A review of the literature related to the implementation and effects of bilingual education reveals that the bulk of the studies are evaluations of projects and investigations of the impact of bilingual education on children. While these studies point out the need for more and better trained staff, an approach for identifying and providing for the specific needs of individual staff members and/or groups of project personnel has not been forthcoming. Furthermore, these studies have not provided the information needed to determine the quality and extent of use of bilingual education as an educational innovation within a particular district. We maintain that the effects, and potential effects, of bilingual education cannot really be evaluated until some reliable process is found to determine the level of use bilingual education has reached in the innovation-adoption process.

After completing a thorough analysis of the context of staff development, we decided to look at bilingual education as an innovation in the process of change and to view staff development as an integral component of that innovation. Having been instituted voluntarily on a rather large scale a decade ago, and more recently legally mandated by several states, a number of discrepancies between the current state of implementation of bilingual education and its optimal use still exist. However, "change" or innovation adoption is not accomplished merely because a decision maker has decreed it. The literature on change and innovation suggests that educational change should be viewed as a developmental process in which the user or group of users progresses through stages from nonuse to high levels of

use. As all, or most, of the individuals demonstrate a high level of use, the innovation may reach optimal institutionalization.

Recent work by Gene Hall and his associates at The University of Texas R & D Center for Teacher Education has resulted in the development of the Concerns-Based Adoption Model (CBAM), designed to conceptualize and facilitate educational change. The model was constructed specifically (1) for the purpose of assisting those in the process of innovation adoption, and (2) to provide a framework within which empirical investigation of the adoption process could be conducted. The model postulates two dimensions along which individuals grow as their familiarity with and use of an innovation increases: Stages of Concern About the Innovation (SoC) and Levels of Use of the Innovation (LoU). Two instruments were developed to assess where an individual stands in relation to the adoption of an innovation: the SoC Questionnaire and the LoU Interview. The SoC Questionnaire measures the individual's level of concern about the innovation, while the LoU Interview focuses on the behavioral aspects of the individual's involvement with a change. Both instruments are based on the CBAM, which assumes that the process of change involved in the adoption of innovations by individuals within formal organizations is a highly personal and lengthy one which affects individuals differently.

To date, the CBAM has been used to investigate a number of educational innovations, such as team teaching in the elementary school, modules in teacher education, elementary science curriculum, and Individually Guided Education (Hall & Loucks, 1977). It has not, to date, been used to examine bilingual education as an educational innovation. Work is currently underway to adapt instruments and tools appropriate for applying CBAM to the unique requirements of bilingual education. The specific goals of our

research are (1) to identify types of bilingual education programs in use; (2) to determine teacher concerns about the implementation of selected programs; (3) to determine the levels of use of such programs; and (4) to draw conclusions based on the findings of levels of use and implementation concerns which will aid in staff development for bilingual education programs. The data we plan to collect from teachers and teacher aides will be analyzed to produce both individual and group profiles which will serve as the basis for developing a process which school districts can utilize to improve the effectiveness and productivity of their bilingual education programs. Since the CBAM has the capability to define the degree of involvement with the innovation and the quality of use of the innovation by all members within a project staff, it can effectively provide the adoption agent (the school) with diagnostic information on which to build prescriptive interventions for each user in the system. It is expected that implementation of intervention strategies that are appropriate and timely and meet the needs of the individual user at a particular stage in the adoption process will result in the reduction of the time needed to complete the process of innovation adoption and, in certain cases, will prevent the adoption process from being aborted.

The focus of our current work is the development of a procedure for determining the configurations (variations on use) of bilingual education being used in the SEDL service area. An important characteristic of the LoU Interview is that it is not specific to any one innovation, since fundamentally different types of questions are not required for different innovations. However, to adapt the LoU Interview to the complex innovation of bilingual education, one needs to specify the frame of reference of the innovation, a process which involves (1) developing a basic definition of

bilingual education based on existing theoretical considerations; (2) developing probe questions to determine the variation on use ("configurations") of bilingual education, as they now exist; and (3) developing guidelines and/or distinguishing characteristics for what constitutes use of bilingual education (how often, how long, etc.). Such information is required to develop probe questions prior to the interview that would enable the interviewer to obtain the information necessary to make a "use/nonuse" decision in the branching-question format of the LoU Interview. Another reason for deciding upon a definition which specifies the various types of bilingual education programs is to determine whether each configuration of bilingual education is best characterized as a single innovation or as several quasi-independent innovations which collectively are referred to as an "innovation bundle." Some configurations of bilingual education may be comprised of several individual innovations, such as English as a second language (ESL), reading in Spanish, Spanish as a second language (SSL), Mexican American cultural heritage, etc. It may be necessary to identify each actual innovation and conduct separate interviews for each.

As mentioned earlier, different patterns of use of an innovation are called "configurations." For many innovations it is possible to identify key characteristics or components for which variations in the innovation can be observed. Specific innovation configurations are operationally defined in terms of variation in the selection and use of innovation components. Hall and Loucks (1978) describe a procedure for identifying configurations which essentially involves determining the components and component variations that describe the innovation in use. Applying this procedure to the innovation of bilingual education, we have developed a continuum of fourteen possible dual-language program structures, each

being defined in terms of variation on three major components:[1]

1. Grade level through which the program extends (e.g., K-3, K-6, etc.).

2. Percent of instruction time of language arts which is devoted to Spanish language arts (i.e., reading and writing in Spanish and Spanish oral language development).

3. Percent of instruction time of content areas other than language arts which are taught in Spanish (i.e., mathematics, science, social studies, music, etc.).

In short, the three most important distinguishing variables seem to be amount of instruction of the language, amount of instruction in the language, and the grade levels through which such instruction is provided.

The type of possible dual-language program structures range from those in which very little Spanish is included in the curriculum to those in which both English and Spanish are used as the medium of instruction in all curricular domains. As shown below the continuum of program structures may be divided into three groups: (1) programs which do not satisfy the minimum requirements to be classified as a bilingual program (following state guidelines), (2) transitional programs, and (3) maintenance programs.

Non-Bilingual Programs				Transitional Programs						Maintenance Programs			
1	2	3	4	5	6	7	8	9	10	11	12	13	14

The division between non-bilingual programs (1-4) and the remaining two groups of programs (5-14) provides the basis for a definition that may be used in making the "use/nonuse" described earlier. Transitional programs

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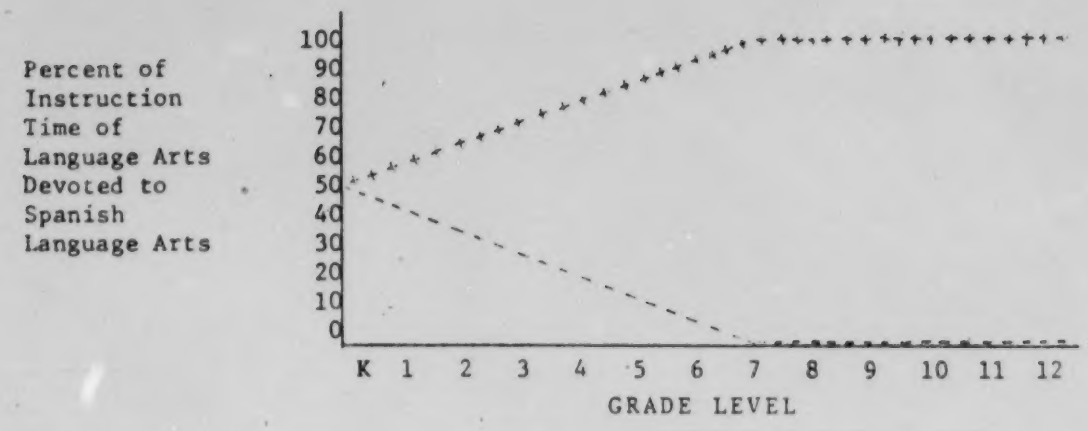
[1] Dr. Ernesto Zamora of the Texas Education Agency worked closely with the staff in developing the continuum and is largely responsible for providing definitions of the fourteen possible program structures.

are those in which Spanish is utilized as an instructional vehicle solely to facilitate the acquisition of English language skills. Instruction in Spanish is provided in decreasing amounts as instruction in English is increased up the grade levels until all of the curriculum is taught in English. In maintenance programs both languages are utilized as vehicles for teaching and learning, but unlike transitional programs, after instruction in Spanish is gradually decreased and English increased, instruction continues on a 50/50 basis at a predetermined point as the student moves up the grade levels.

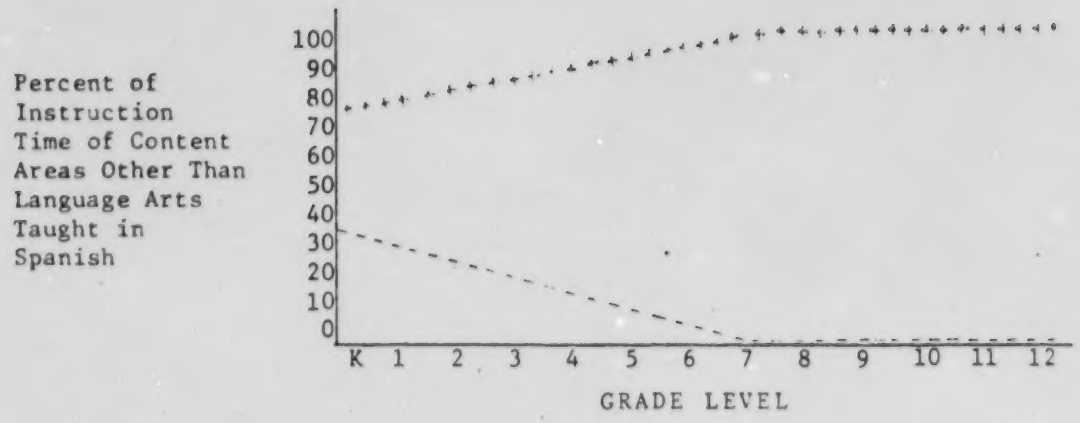
It is possible to represent graphically the differences between the various program structures by plotting variations on the three major components described earlier. Consider the following definitions for program structures 9 and 11, the former being a transitional program and the latter a maintenance program:

> 9 - Programs of this type develop understanding, speaking, reading, and writing in both English and Spanish, with Spanish used as a medium of instruction in some curricular domains (e.g., math and science).
>
> 11 - For maintenance programs of this type, Spanish and English language arts are offered at the secondary level with all other subjects taught in English.

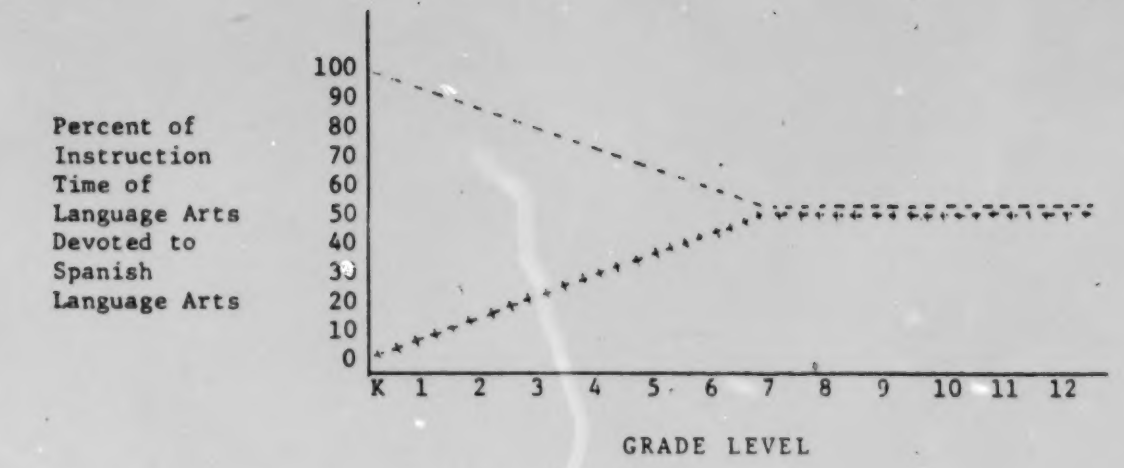
Assuming a sixth grade transition point for both types of programs, the following sets of graphs depict protypical curriculum patterns for the two types of program structures (the first two represent program structure 9 and the second set program structure 11):



KEY:
Spanish ---
English +++



Curriculum Patterns for Program Structure 9



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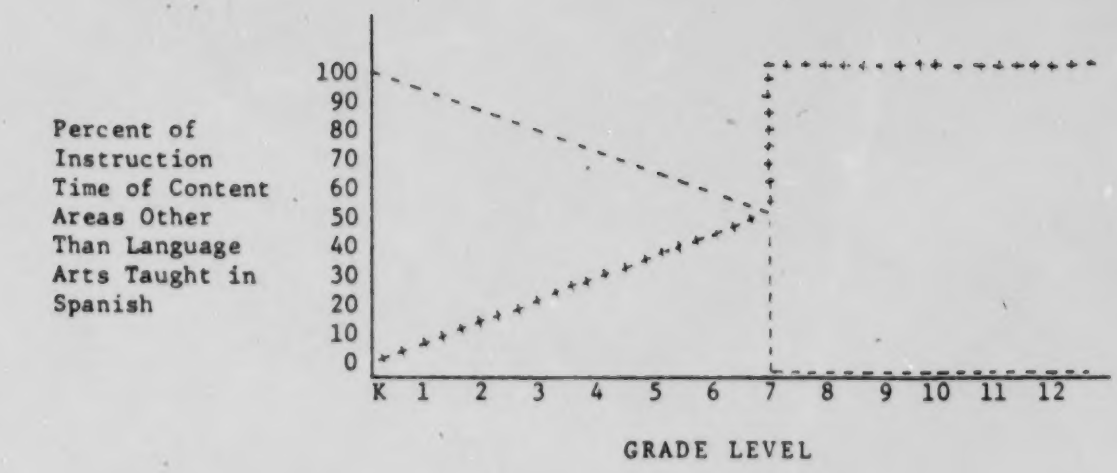
Spanish ---
English ++ +



Curriculum Patterns for Program Structure 11

A computer program is currently being developed which will generate the necessary descriptive information to determine the configurations of existing bilingual education programs. For each language group formed for instructional purposes within a classroom, the computer will process information pertaining to each of the content areas taught; specifically, the amount of time spent, who teaches the content area, the language of instruction, and the language of materials used. To determine possible relationships between various demographic variables and the type of program implemented and/or its degree of implementation, additional information on each classroom teacher involved in the program will also be processed, including grade level taught, number of years at present school, number of years involved in bilingual education, proficiency in Spanish, TEA certification status, specialized training in bilingual education, and highest degree earned.

To briefly summarize, the expected outcomes of our research include (1) generating knowledge about bilingual education models as they currently exist in the field; (2) providing educators with instruments and procedures for determining the stage of development of bilingual education within their institutions; (3) producing data which will serve as the basis for identifying specific needs of individual staff and/or group of project personnel; and (4) laying the foundation for future research on teacher effectiveness, program evaluation, impact studies on bilingual education, and studies on the effectiveness of different types of bilingual education programs. Concerning the latter, a recent conference hosted by the RMC Research Corporation was held to discuss the evaluation of Title VII PIP (Project Information Packages) bilingual projects. Having contracted with three school districts to aid in the implementation and evaluation of PIP bilingual

projects, the Division of Bilingual and International Education of SEDL was invited to participate in the conference. One of the major problems discussed at the conference was the lack of comparison groups for projects located in the state of Texas, where bilingual education has been implemented on a statewide basis. A possible solution to this problem involving the application of CBAM is to assess the degree of implementation of bilingual programs in different districts and use those having a very low level of implementation as control groups for comparable programs at a more advanced stage of implementation. Another potential application of CBAM is the evaluation of comparable programs which have undergone different intervention strategies to move the program to higher levels of implementation. A determination of Levels of Use and Stages of Concern of staff personnel following the completion of staff development activities may reveal that one type of intervention strategy is better than another. It is clear that implications for staff development and program evaluation based on the CBAM are powerful indeed.

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PROGRAMMATIC RESEARCH AND DEVELOPMENT AND THE DISSEMINATION/UTILIZATION OF EDUCATIONAL PRODUCT SYSTEMS*

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PROGRAMMATIC RESEARCH AND DEVELOPMENT AND THE DISSEMINATION/UTILIZATION OF EDUCATIONAL PRODUCT SYSTEMS*

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The approach to dissemination and utilization research discussed in this paper represents one application of a general methodology for the conduct of educational R&D which has been referred to as programmatic R&D (Hanson & Schutz, 1975, 1976, 1978). The methodology is such that the findings relevant to dissemination and utilization emerge along with research findings in other related areas of R&D inquiry, such as measuring schooling effects, identifying effective school practices, defining management information systems, and so on. In other words, the methodology simultaneously provides the vehicle for research on a broad range of educational areas of which dissemination and utilization is included. While this paper will focus on the elements of the methodology and on findings and problems relevant to dissemination and utilization, the more general value of the approach is important to keep in mind.

BACKGROUND

Programmatic R&D is sustained, cumulative inquiry of sufficient duration and scale to have identifiable effects that are of public and professional significance. The requisites for our current study of dissemination and utilization from a programmatic R&D orientation were

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produced by efforts that began at SWRL in the mid 1960's. The inquiry initially focused on the conjecture that major improvements in the effectiveness of schooling could be obtained by using available knowledge to develop new product systems for use in schools. The nature of the product systems sought in this context was clearly defined. They were to be distinguished by the extensive design research behind them; the fact that they were to be complete instructional product systems, i.e., provide all necessary materials and procedures for direct instruction to students on specified outcomes; and that they would be verified as effective through extensive empirical efforts in real educational settings, i.e., the "natural" school environment. This type of product system had been rarely, if ever, used in schools on a wide scale basis up to this time. A further discussion of these product systems and other sources for "innovation" in schools is provided by Schutz and Niedermeyer (1978).

As might be expected for the first few years of the product development effort, the R&D work centered most heavily on the instructional systems which were to be state-of-the-art in terms of the embodiment of available scientific and technical information. SWRL concentrated on developing such programs in the area of basic skills for use in elementary schools (K-6). As the first generation of these instructional systems emerged they were tested in schools using programmatic R&D methods. Although these exercises provided evidence for their effectiveness, measured in terms of actual student learning, it also showed that further R&D would be needed to implement these programs in LEAs across the country.

Consistent with those findings, the R&D emphasis shifted to identifying and providing the support systems for the effective installation of the classroom-verified instructional products. These support systems were designed to support implementation across the full range of suitable educational situations in which the instructional product could be used. In this context, professional/technical elements such as training systems to familiarize school personnel and information systems to show the effects of the programs in terms of pupil learning were developed and deployed as part of the product system. Once again, the product systems were used in actual school settings and data gathered using programmatic R&D methods. In this case, the prime purpose was to see if the natural deployment of the product system led to high levels of pupil proficiency across the range of schooling situations.

More recently, the R&D emphasis shifted again, this time to looking at the maintenance and further growth of the new practices these product systems brought into schools. There is evidence that these product systems have functioned effectively in instructional programs that have maintained their identity and integrity over considerable periods of time, e.g., five years. However, we do not have a clear idea of the range of the implementation effects associated with the use of the product system and the extent to which these effects have been generalized beyond the use of the product system. These and related questions are the focus of our current inquiry, once again using programmatic R&D methods.

APPROACH

Present inquiry is being conducted that will clarify the matters of dissemination and utilization in education through large scale studies using product systems as the vehicles. In this arrangement the product systems are the operational means of conveying to schools new knowledge and technology in a form in which it can be readily understood by school personnel, i.e., operational use. The extent to which the dissemination/utilization is successful and, more importantly, the factors affecting the extent of success, is investigated. In other documents (Hanson & Schutz, 1978, 1977, 1976; and Hanson, Schutz, & Bailey, 1977) the methodological requirements for the inquiry have been described. These are summarized below:

1. The use of data from natural school environments involving a defined "product system" or other vehicle that operates with a large number of pupils, classes, schools, and districts, across successive years of schooling.

2. A primary set of data gathering components designed specifically for the product system and linked to both the operation of it and current research interests.

3. A secondary set of data gathering components that provides information on specific inquiry variables. These measures are prepared and distributed to both minimize required effort and maximize information utility.

4. A program information service that provides reports on progress and results to various audiences of current and/or future users. The information service is also a relatively unobstrusive vehicle for gaining source data regarding program implementation, pupil performance and other variables without imposing "data collection" requirements for extrinsic purposes.

The prime feature of the method is that it incorporates into the natural instructional environment one or more product systems to aid the participants (students, teachers, and administrators) as their

first and foremost function. But these product systems concurrently provide unique instrumentation and data for understanding matters such as dissemination and utilization. Because all schools use a common product system with known characteristics, the method permits direct examination of the impact of this vehicle on various attributes such as student instructional achievement. Data on other dependent variables which focus on dissemination and utilization of both the product system and practices they embody are also obtained. The effects on these dependent measures can be examined relative to variation observed in a whole set of attribute variables which reflect characteristics of the school/district implementation/use/dissemination effort. Some attributes of particular interest are the procedures used to install a new product system, the nature of the involvement of various personnel, methods of training, and procedures and personnel used in planning and management of the system. The list of possible attributes that may be considered using this approach is as long as the list of possible conjectures of educational researchers.

Measures of the most currently plausible and useful of these attributes are included as part of the instrumentation accompanying specific programmatic inquiry. However, these variables are <u>not</u> similar to those found in educational survey and evaluation research. They usually measure some functional aspect of the product systems, often in a unique manner. For example, if interest is centered on instructional time allocation by teachers as an attribute to be probed, then specific indicators of it are embedded in the product system (Hanson & Ross, 1973) being used as the research vehicle. Since the indicators are product

system specific and can be referenced to daily product system operational use, the task of developing very accurate measures of instructional time is greatly simplified. Likewise, the task of providing data on these measures is relatively easy. While teachers have considerable difficulty referencing time measures to pupils, they appear to find it quite easy to reference them to segments of instruction, e.g., a specific lesson.

Data obtained from a large number of product system users during a substantial period of use, e.g., one or more school years, are analyzed in relation to other measures to which they should be logically related. The purpose is to see to what extent "plans," i.e., what is to be achieved and how it will be accomplished, relate to the measures of "practices," i.e., what is actually done during schooling operations, and how each of these relate to schooling "effects," i.e., what is accomplished over some substantial segment of school operations. Via this simple approach we have begun to identify factors in each of these three categories, i.e., plans, practices and effects, which are linked together conceptually, analytically and empirically (Hanson & Schutz, 1978). Some exemplars of each of these types of variables and the analytical levels at which we have examined them are given in Table 1.

Table 1

Some Operational Sources of Evidence for the Impact of Educational Innovations on the Schooling Process

Category/Exemplars	Measurement Units: Pupil	Class/Group Grade	School	District
PLANS: What is to be achieved and how it will be accomplished.				
allocation of curriculum time to instructional areas		X	X	X
achievement levels expected for instructional areas	X	X	X	X
allocation of personnel resources to instructional areas			X	X
projected instructional material use		X	X	
participation of pupils	X	X	X	
PRACTICES: What is actually done, i.e., schooling procedures and materials, during school operation.				
use of curriculum time	X	X	X	
grouping practices for instruction		X	X	X
materials used in instruction		X	X	
rate of instructional completion		X	X	X
teaching practices used		X	X	
participation level of pupils	X	X	X	X
use of personnel resources		X	X	X
EFFECTS: What is accomplished over some substantial period of time, e.g., school year.				
instructional activities completed		X	X	
levels of pupil achievement by outcome areas	X	X	X	X
material costs for outcome areas	X	X	X	X
time costs for outcome areas		X	X	X
personnel costs for outcome areas		X	X	X

The relevance of these classes of variables to dissemination/utilization research is direct. They can be viewed as a preliminary set of information sources needed to identify the impact of an educational innovation on schools and schooling. While the list is clearly preliminary and has been derived from work with one class of educational innovation, i.e., product systems, it does provide a starting point for further discussion on this issue.

However, the point of presenting the chart is not so much to provide an operational set of variables to use, but to illustrate how the method of programmatic R&D supports the formulation of conceptual frames of reference relevant to the matters of dissemination/utilization. These frameworks are not generated from the "top down" but rather from the "bottom up." This can be illustrated by looking at the actual indicators developed for one set of variables in the framework--pupil achievement. This type of dependent variable in programmatic R&D correspond to the product system outcome measures which indicate pupil learning directly attributable to instruction and generally reflect very closely amount of instruction received. A technology has been developed to construct tests which are very sensitive to changes in pupil learning attributable to an instructional program (Hanson, Behr, & Meguro, 1978). These measures have proven in operational use to yield a pattern of relationships to schooling practices that is more substantial and coherent than has been derived using traditional experimental and correlational methodology (Hanson & Schutz, 1978).

Based on the results of a single programmatic R&D inquiry, e.g., for an academic year, reasonable inferences as to the importance of a

specific measure of a general attribute (or attributes), e.g., time, product system use, can be ascertained relative to a set of "effect" variables, e.g., rate of learning, achievement, product system extension. These results then are expanded into verified conclusions via processes such as cross-validation, replication, generalization, and extension carried out in subsequent and concurrent product system inquiries. Because the method inherently includes a large number of representative user populations, cross-validation analyses can be carried out within user subgroups. Replication inquiries which provide data across years with both the same and different users of the same product system, are carried out. Generalization occurs when findings from inquiries in which different product systems are used are found to support the same conclusions. Finally, extension takes place through the confirmation of a finding with longitudinal data on the same users and/or the introduction of new measurement constraints and use conditions in subsequent inquiry with predictable results.

Some of the assumptions which underlie the method as it relates to utilization/dissemination inquiry are the following:

1. Any principles, procedures, technology, innovations, etc., to be disseminated via product systems must be carefully investigated both analytically and empirically prior to their wide scale deployment, i.e., must be state-of-the-art.

2. Dissemination/utilization of available state-of-the-art technology can be successfully carried out using product systems as the vehicle.

3. Product systems, to be effective vehicles for the dissemination/utilization, must be suitable for use in schools as they presently exist, i.e., they should not try to redefine school structure, but respond to it as a condition of the effort.

4. Product systems must be cost effective when evaluated in terms of service delivered, i.e., pupil learning, and must be within the cost constraints of schools as they presently exist.

5. Student effects will be a primary but not sole criteria for evaluating any dissemination/utilization effort utilizing product systems.

To summarize, the methodology provides a means of clarifying matters of utilization and dissemination based on providing schools with improved educational "tools." These "tools" are product systems which provide a "natural" (and cost effective) means for bringing instructional program innovations to schools. These product systems have been shown to impact directly on the commonly shared objective of all people directly involved in the educational enterprise, i.e., schools, universities, publishers, R&D agencies, improving student learning. Therefore, providing vehicles which transform available knowledge and technology into product systems that address this common objective is a plausible way to respond to these multiple groups. That is, dissemination of verified educational techniques and knowledge occurs through utilization of new product systems that can demonstrate their effect on pupil learning.

SOME FINDINGS

In the process of using this approach for research on utilization and dissemination in education, some general findings have emerged. First of all, we, like others, found there was no "body of new knowledge" waiting to be "disseminated and utilized" by schools when work began on instructional systems. That knowledge reservoir has either never existed or cannot be found. Educational knowledge and practices are generally not in a form that can be provided to schools in a manner

where they can be directly utilized. Instead, knowledge must be carefully transformed, blended, tested, and integrated into a form that schools can use. One such way that seems to work is via product systems. However, there are certainly many other ways that have been (and are being) tried and numerous other untried possibilities do exist (Schutz & Niedermeyer, 1978).

It would appear that an important R&D task in this general area is to provide further understanding of the available vehicles for dissemination and utilization. A special concern is their cost relative to returns. In our opinion, a small number, i.e., four to six, of functional approaches to dissemination/utilization for schools can be identified. Each type of approach might serve to fulfill certain informational/operational requirements of schools in a cost-effective manner, i.e., provide a reasonable return for the R&D and schooling effort expended. This innovation approach structure and the corresponding school information/operation structure need to be identified (not necessarily in that order!). Then meaningful R&D, perhaps using programmatic R&D methods, might be used to develop vehicles to collect information that can be used to further our understanding of them.

Another finding is that the overall process which ultimately ends in the utilization and dissemination of an innovation has several phases preceding it which are crucial to overall success. The first is the generation/transformation of available knowledge, resources, materials, into a functional innovation, e.g., a product system. The second is the installation of the innovation by schools. It is during this phase that the innovation must be adapted into the school environment in a way that

will allow its operational use to begin. A third phase is operational implementation. During this period, schools are using the innovation as a regular part of their operation, i.e., there is no longer "special" consideration of it. To some extent, this phase can be viewed as corresponding to full utilization.

An important related finding is that the incentives necessary to energize and sustain an implementation effort requires sustained attention over a significant time period, i.e., three to seven years, and that incentives must be found for all educational agencies affected by the innovation, i.e., publishers, R&D sponsors, educational governance groups and, most of all, the schools, to become involved. There is within schools and the educational community in general a substantial "inertia" that has to be overcome before an innovation can "take hold." Current experience indicates that it is only through multiple years of implementation that the full set of benefits that accrue from use of product system innovations can be realized by school users and the educational community. Only after this point has been passed can the incentives be reduced (Hanson, 1978).

CURRENT STATUS OF THE INQUIRY

Through programmatic R&D exercises carried out over the past seven years, a series of large data bases that carefully characterize product system implementation and are used by schools have been and are being generated. These data bases provide extremely useful data for studying the process of dissemination/utilization with product systems as the vehicles. They include as many as 5,000 classes across the country

within a single school year and, in some cases, were based on use of the same product system over multiple years of operation. The fact that multiple years of data on a single product system are available, with some continuing and some new schools, provides the necessary time for the process of utilization and dissemination to emerge. The fact that such data are available on multiple product systems will help sort out idiosyncratic events from consistent results.

However, the examination of existing data bases is not the only aspect of dissemination/utilization research that is going on. New data are being gathered, based on the best available "hunches," in several different ways. One way is from ongoing exercises of product systems, as well as other innovations. In this context, the new innovations are accompanied by data probes reflecting current knowledge and thinking about dissemination/utilization. In this way, the implications of the prior exercises' results can be incorporated to extend our knowledge base. The intermediating elements are models of schools effects of which dissemination/utilization is an important part.

Another way of extending these models is through special studies. These are <u>not</u> linked to product systems operations at all but use the product system inquiries to provide the required sample and conditions. An illustration might be helpful. In one investigation, we are carrying out a follow-up study of schools that participated in product system exercises which took place over the past six years. In this study, schools and districts whose cumulative pattern of product system

utilization differed will be treated differently in terms of the questions asked. The general objective is identifying the factors that lead some schools to realize high degrees of dissemination/utilization of a product system while others did not. Toward this end, we are building a model that can be used to explain and understand the interrelationships observed and to guide further inquiry.

SOME PROBLEMS AND ISSUES

Some problems were touched upon in earlier sections of this paper. One of these was the general tendency in large scale R&D directed toward dissemination to underestimate the requirements of the task. The requirements to develop and make available the product systems required for this kind of endeavor were undoubtedly greater than anyone imagined at the outset. Much of the necessary "input" had to be generated or transformed dramatically in order to be amenable to product systems schools could use. Immature expectations prior to and during this period on the part of all concerned have proven to be a major frustration to all aspects of the educational community. The responses to this frustration, however, may be even more damaging. Major shifts in policy have moved efforts farther from, rather than nearer to, professional/technical advances with platitudes such as "R&D has failed." In our experience we have found that a long-term perspective must be taken. Each phase of the process must be viewed with a three to five year time frame perspective. Further, incentives must be provided to each participant group for the whole dissemination and utilization functions to occur. That is, unless extremely careful work has preceded,

dissemination and utilization "being the last on the sled" will never be realized, let alone be understood.

Turning away from the broader R&D policy issues to more substantive concerns, there are some clearly defined research issues to be addressed in the area of dissemination/utilization. One of these is to identify just what constitutes appropriate objects, i.e., knowledge and technology, for dissemination/utilization to schools. A second related issue is in what forms or types of innovations, i.e., product systems, governmental mandates, school board directives, testing and instructional materials, might this new knowledge and technology be embodied? Put another way, at this point in time, neither the objects nor methods of dissemination/utilization are well understood. However, there are a number of approaches currently being taken to these issues, many of which are represented at this conference. With continued support of these various approaches, the overall state of our knowledge about the matters of dissemination/utilization should be (and is) improving.

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IMPLEMENTATION INQUIRY AT SWRL EDUCATIONAL RESEARCH AND DEVELOPMENT

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IMPLEMENTATION INQUIRY AT SWRL EDUCATIONAL RESEARCH AND DEVELOPMENT [1]

Fred C. Niedermeyer

Our research is implementing inquiry on implementation. That is, the research is investigating the real time characteristics and conditions of phenomena that are intended to result in identifiable educational accomplishments. Such implementation can range in scope, for example, from a school district's implementation of a three-week, teacher-developed energy education unit, to the nationwide implementation of Public Law 94-192--The Education of All Handicapped Children. Of particular interest to use are implementations involving various SWRL-developed product systems for instruction and/or assessment, since these are well-documented and defined, and so provide convenient instrumentation for the inquiry.

The inquiry centers around three areas: definition of an implementation framework, retrospective inquiry, and prospective inquiry. Our approaches in each of these areas are elaborated below.

Defining an Implementation Framework

Our working framework sets forth categories of phenomena that are implemented, and posits commonalities among exemplars within categories and differences among categories in the course of implementations over time and in their resulting benefits (Schutz & Niedermeyer, 1978). The framework can be described in terms of several characteristics.

Categorizes Implementation Phenomena. A primary goal of the inquiry is to describe the relationships involving categories of phenomena that are implemented and the instructional effects that are evidenced during the course of implementation. Requisite to such inquiry is delineation and differentiation of just what it is that schools or other educational agencies implement. Rather than treat "what is implemented" from either a totally generic or a totally idiosyncratic perspective, we are analyzing and categorizing the various referents

[1] Paper prepared for Conference on Research on Dissemination and Utilization. University of Texas, October, 1978.

educators use when describing their "programs" (e.g., "We're an ECE school," "We team teach," etc.). Thus far we have identified nine different categories of referents used to describe what is implemented. These include such phenomena as categorical grants, curricular structures, materials-embodied products, personnel training and others. The current listing of categories and examples of each category appear in Table 1. A further division of one of these categories, materials-embodied products, is contained in Table 2. How all of these categories, singularly or in combination, affect instructional accomplishments and other potential benefits to schools is a central concern of the inquiry.

Differentiates Implementation. Effective and sustained implementation is not a one-shot affair that takes place all at once following a teacher orientation meeting. As the work of Gene Hall and his associates (1975) has demonstrated, it is important and useful to define phases of implementation over time. These phases may be defined generically as Hall and his associates have done. They may also be defined differentially by "what is implemented" categories. For materials-embodied products (see Table 2), we have differentiated three phases of use. The first is a mechanics focus, where the unfamiliar user is simply working through the "mechanics" of using the product system for the first time. The predictable second phase is coverage focus, where the experienced user is simply "moving through" the product as intended and is delivering the desired instruction. The final stage is an achievement focus, where the user is sensitive to elements of the product system (e.g., the time spent in instruction on certain outcomes, the types of pupil practice activities) according to monitored indicators of each student's proficiency on the intended outcomes.

Specifies the Various Implementation Activities and Participants. Through the development and implementation of SWRL's product-referenced assessment information systems and the resulting data bases, SWRL researchers have been able to identify and verify manipulable conditions for successful implementation. Hanson (1978), for example, has shown

Table 1[1]

Categories of Instructional Phonemena Implemented by School Districts

Category	Examples
Categorical Grants	• Title 1 • AB 65 (ECE,RISE) • Title VII
Curricular Structures	• Open Schooling
Legislated Rights	• Integration Legislation • Handicapped Legislation (PL 94-142)
Materials-Embodied Products	• Ginn 720 Reading • SWRL Communication Skills Programs • California Tests of Basic Skills • SRA Learning Kits
Organizational Structures	• Wisconsin R&D Center's Individually Guided Education (IGE) • Team Teaching
Personnel Training	• Teacher Centers Legislation • Bay Area Writing Project
Professional Techniques	• Behavioral Modification • Discovery Learning
Specialist Personnel Assistance	• District Music or Art Instruction conducted by staff of specialists • School Speech Therapy
Technical System Assistance	• SWRL/CSA Basic Skills Learning Centers

[1]From Schutz & Niedermeyer (1978)

Table 2[2]

Categories of Materials-Embodied Products

Category	Examples
Textbook Series	• Ginn 720 Reading • Scott-Foresman Mathematics Around Us
Comprehensive Instructional Systems	• SWRL/Ginn Communication Skills Programs (Reading, Spelling, Composition, Expressive Language) • CEMREL Mathematics
Standardized Test Batteries	• California Test of Basic Skills • Iowa Tests of Basic Skills
Instructional Accomplishment Information Systems	• SWRL Proficiency Verification Systems • Westinghouse PLAN
Modular Instructional Resources	• SRA Learning Kits • SWRL Learning Center Resources • Audiovisual Resources • Game Materials

[2]From Niedermeyer & Elam (1978)

the necessity for school districts to "match up" their instructional intentions, instructional instrumentation, and information indicators in order to determine what is accomplished and why. Behr (1978) has documented the importance of such implementation activities as the start-up date for instruction, pupil placement in instruction, and the amount of time spent on instruction. The implications of these and other SWRL studies of schooling and schooling effects have been incorporated into the implementation framework. We describe, for example, the importance of implementation planning activities and resources, as opposed to the actual instructional activities and resources. We have found it useful to posit a three-part iterative cycle of implementation activities: planning, followed by instruction, followed by determination and study of effects. Information regarding instructional effects each year is then used to start a new cycle of planning and instruction. Finally, we have found it useful to identify the various "players" in implementation and describe their roles. For the implementation of materials-embodied products, for example, we distinguish as categories, teachers, school coordinators/administrators, district coordinators/administrators, school board members, and parents/community members.

Generates Instrumentation to Facilitate Implementation. Since the working framework provides an understanding of what is implemented, as well as of how and to what extent the implementation occurs, it is logical and desirable for the framework to provide for the formulation of instrumentation designed to facilitate the implementation and optimize its efficiency and effectiveness. We have found, for example, that implementations of materials-embodied product systems are more successful if they include specific apparatus for such tasks as scheduling instruction in light of anticipated instructional outcomes and available instructional time, placing and assessing pupils, reporting instructional effects, and using effects information to plan improvements in the implementation.

Retrospective Inquiry

This line of study describes what happened or is happening in a given implementation or set of implementations for the purpose of testing and further differentiating both the logic reflected in the framework and the instrumentation reflected in the inquiry. A number of such studies have been conducted in the inquiry to date.

The study of the nationwide implementation of our Kindergarten Program, for example, documented that implementations of well-developed product systems can help schools produce uniformally impressive pupil accomplishments, regardless of the socioeconomic or other background characteristics of the pupils, and that most differentiation in the accomplishments of pupil groups can be attributed to implementation factors (amount of instructional time, placement, etc.) entirely under the control of the schools (Hanson & Schutz, 1976, 1977). Another study compared several primary education programs, and produced additional instrumentation for studying implementations, e.g., ways to examine attainment of program outcomes in light of the amount of instruction delivered (Hanson, Schutz, & Bailey, 1977).

In an analytical mode, Elam & Niedermeyer (1978) applied the SWRL implementation framework to the various categories of instructional product systems listed in Table 2. The expected behaviors of the various players (teachers, coordinators, administrators, etc.) for each product category were delineated and verified against empirical retrospective experience.

Several retrospective implementation inquiries are currently in progress, including the implementation of the SWRL Music Program in several thousand Los Angeles City classrooms, and the implementation of SWRL's Proficiency Verification Systems (PVS) in a wide range of school district settings.

One of the highest priorities is to apply our implementation framework to the full set categories of implementation phenomena listed in Table 1. What typically happens, for example, in the implementation of a categorical grant program such as recent legislation in areas like handicapped pupils or nutrition education? What benefits to pupils actually result from these implementations? At what costs? How can these types of implementations be made more cost effective?

Prospective Inquiry

This line of study involves the preparation and testing of instrumentation and resources conjectured to make the course of implementation for a given category (Tables 1 and 2) or combination of categories more economical, efficient, and/or effective. Again we have conducted several studies in this mode and have others in progress.

In one study (Niedermeyer & Fischer, 1974), an outcomes-based instructional supervision kit was prepared for elementary principals whose teachers were implementing the SWRL Kindergarten Program (instructional concepts and beginning reading skills). The kits provided principals with the instrumentation to conduct many of the activities our framework specifies for effective implementation, e.g., formulating instructional schedules and start-up dates, using information on instructional effects to make adjustments designed to improve the implementation, etc. The results of the research showed substantial learning gains by pupils in the experimental schools over pupils in control schools using the same instructional program, but without the implementation resources for supervision.

The most recent opportunity to fully apply the working framework prospectively to a large-scale implementation has been our Basic Skills Learning Centers Project (BSLC), sponsored by the Community Services Administration. During the course of this three-year study, we have prepared and tested instrumentation for the implementation of Basic Skills Learning Centers in remedial math and reading in over 500 schools

in 20 states. Much of the implementation instrumentation was designed to move schools and districts through the "mechanics" and "coverage" stages as efficiently as possible. Some of the specific instrumentation prepared for this inquiry included:

- A first-year planning kit that helped schools become familiar with the project and its instructional materials during the spring prior to the initiation of instruction the following fall. Thus, a school was able to tentatively organize and plan its learning centers long before the truckload of materials hit the school in September.

- First-year operations resources that helped teachers place pupils appropriately in centers and materials, and initiate and conduct instruction.

- A second-year planning kit that schools used near the end of the first year of instruction. The kit helped teachers and administrators determine the progress pupils were making toward remedial goals ("catching up," "keeping up," "falling behind"), and helped them identify changes they could make during the second year to increase their effectiveness (e.g., create additional centers, initiate instruction earlier, allocate more time to instruction, place pupils in instruction more appropriately, etc.).

Similar operations and planning kits are under development for the third year, and will continue to move the users toward more sophisticated and effective implementations. This BSLC inquiry has already helped us modify and refine our implementation framework. For example, our initial planning kit contained procedures for how schools could avoid "overloading" teachers or learning centers in terms of the number of pupils and learning kits assigned to a particular center and its staff. However, schools were simply not "ready" for these considerations the first year. Thus, we were tempted to include these considerations in the second-year planning, but as it turned out, planning at this level of sophistication is more appropriate and feasible for the third year. We found that planning for the second year instead needed to focus almost entirely on simply getting all target pupils into appropriate materials and on delivering all intended instruction, i.e., the "coverage" or second

stage of our three-stage model. Considerations of how to maximize pupil learning once instruction is delivered (i.e., our "achievement focus" stage) will wait until the third year of this project. These third-year considerations include such things as "overloading" of centers, and inefficiencies of center operations and procedures.

Longer-Range Future of the Research

The interactive paradigm of our working framework, retrospective inquiry, and prospective inquiry provides a stable foundation for programmatic research that we see clearly for a 5-10 year future. Future priorities for specific studies will rely on the cumulative information that is generated as the research advances and is informed by studies external to the project.

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OVERVIEW OF THE PROCEDURES FOR ADOPTING EDUCATIONAL INNOVATIONS PROGRAM OF THE TEXAS R&D CENTER

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Overview of the Procedures for Adopting Educational Innovations Program of the Texas R&D Center[1]

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In the final analysis, the objective of educational research and development always reduces to the definition and implementation of some form of change. The practical value of a research program ultimately lies in the impact it has on educational practice, assuming its products can reach the safe harbor of appropriate use in a supportive environment. Too often, the educational researcher or product developer stands by helplessly to watch a carefully crafted, delightfully innovative, thoroughly tested product battered to pieces on the reefs of faulty implementation.

The developer's distress is shared by those administrators and staff responsible for the initiation of progressive change within educational systems. Despite the best intentions, change agents frequently are unable to claim success for their efforts to promote positive growth and innovative change.

Ironically the ultimate victims of these exercises in futility are the individuals who are the intended beneficiaries. Both teachers and students suffer confusion and frustration in trying to function within the unproductive

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[1]The research described herein was conducted under contract with the National Institute of Education. The opinions expressed are those of the authors and do not necessarily reflect the position or policy of the National Institute of Education, and no endorsement by the National Institute of Education should be inferred.

limbo between an old program, now disenfranchised, and a nonfunctional new one.

In too many cases, the problem is attributed to faulty design of the product, or to its insensitivity to the needs of the recipients. In fact, however, the difficulty may arise from an incomplete understanding of the adoption/implementation process, of the demands that process makes on the individuals caught up in it, and of the options available for its facilitation. A research effort is currently underway at the University of Texas Research and Development Center for Teacher Education to address those needs and problems inherent in implementation of the change process. That effort is the Procedures for Adopting Educational Innovations Program, or PAEI.

The goal of the research program is to acquire a more detailed understanding of how implementation of educational innovations takes place and, particularly, how it affects individuals who must actually use those innovations. The ultimate products will be tools to facilitate the process, including:

(1) a practical model of the change process;
(2) diagnostic tools to map the specific stages of the change process and the stance of individuals involved in it;
(3) implementation strategies that utilize knowledge of the state of the process and its projected direction; and
(4) techniques that relate the progress of innovation adoption and implementation to the real needs and concerns of the individuals involved in it.

The purpose of this paper is to present a cursory review of the PAEI program, not detailing research findings, but focusing more on trends and issues raised.

Evolution of the PAEI Program

The PAEI program was established as one of several new initiatives at the Texas R&D Center in 1974. The program emanated from six years of previous work of R&D researchers who had collaborated with staff at many colleges and universities around the nation that were involved in developing innovative

teacher education programs. As a part of that collaborative effort, Center staff had documented their field experiences as outside change agents, including perceptions about the problems and adjustments of teacher educators attempting to develop and implement innovative practices.

During 1972-73, field note data were merged with knowledge gained from previous change experiences in school settings, previous research at the Texas R&D Center and a review of the change literature. A new conceptualization of the change process emerged. This model was named the Concerns-Based Adoption Model or CBAM (Hall, Wallace & Dossett, 1973). The PAEI program was established as a research effort to initially verify key dimensions of the CBAM.

CBAM Theory

There are several key assumptions which underlie the Concerns-Based Adoption Model. These are:

(a) change is a process rather than a solitary event;
(b) the change effort must examine the individuals within the context of the organization;
(c) change is a highly personal experience for those individuals; and
(d) there are identifiable developmental levels and stages to the change process, that are experienced by the individuals involved.

A brief overview of the CBAM follows.

As individuals adopt an innovation, they progress through a series of identifiable Stages of Concern About the Innovation (SoC) (Hall & Rutherford, 1976) and Levels of Use of the Innovation (LoU) (Hall, Loucks, Rutherford & Newlove, 1975). Further, the model proposes that change facilitators must work in highly adaptive and systemic ways to facilitate the process by continually monitoring the movement or lack of movement, the development or lack of development of Stages of Concern and Levels of Use of various members of the user system. The change facilitator can then identify, design and deliver those interventions that are most relevant for innovation users and potential users. Simply stated,

the model proposes that change facilitators can diagnose various dimensions of the change process related to adoption of an educational innovation, and then can develop appropriate prescriptions for the delivery of interventions on that basis.

Laboratory for PAEI Research

Because the thrust of the research efforts requires the scrutiny of the change process as it is ongoing in schools and colleges, the research laboratory has been the "field". Past research has been conducted in school systems in many states, including Texas, Nebraska, Massachusetts, as well as in many colleges and universities around the country. Two present field sites are located in Jefferson County Public Schools near Denver, Colorado and in Bowling Green, Kentucky.

In addition to data collection and analyses in the more controlled research settings, the program staff continue to assist practitioners who are involved in the problems and challenges of managing change, maintaining contact with change facilitators, administrators, linking agents, and others in different types of educational institutions. It is hoped that through the combination of research and the active facilitation of change, the most well formulated research and theory building on the change process can take place.

Research Foci: Past, Present and Future

The ultimate goal of PAEI program research is to test concepts hypothesized in the CBAM. As program staff work to conduct studies that are psychometrically rigorous, they must simultaneously develop ideas and procedures that are of direct utility to practicing change facilitators. The program has been through several stages in the research effort toward verification of CBAM theory. Initially (FY 74 & 75), studies focused on the individual, and the development of measurement tools and procedures for assessing user concerns (Stages of Concern About the Innovation) and use of the innovation (Levels of Use of the Innovation).

Figure 1

Past, Present, and Future Research Questions and Objectives
of the Procedures for Adopting Educational Innovations/Concerns-Based Adoption Model Program

A

FY 75 & 76

1. Are there differentiable Stages of Concern about an Innovation?
2. Are there differentiable Levels of Use of an Innovation?
3. Are concerns about and use of an innovation developmental?
4. Are the concerns about and use of an innovation related to each other?
5. Are concerns about and use of an innovation related to other variables?

B

FY 76 & 77

1. Conduct secondary analyses of the longitudinal LoU and SoC data base.
2. Development of the concept of innovation configurations.
3. Development and description of a generic procedure for determining configurations.
4. In collaboration with one school system, design and conduct a concerns-based program of innovation implementation.
5. Use ethnographical methodologies to systematically collect data about interventions in field settings.

C

3 - 5 Year Plan

Objective 1. To identify and describe the significant factors that affect the user's SoC and LoU and the innovation configuration.

Objective 2. To investigate the critical characteristics of the unit manager (especially the school principal), which affect the individual user's SoC and LoU and the innovation configuration.

Objective 3. To determine how identified classes of selected interventions affect the user's SoC and LoU and the innovation configuration.

Objective 4. To translate the concepts and measurement techniques identified and developed for assessing the individual and the user system setting into diagnostic tools for use by practitioners and to study their use.

Objective 5. To combine Stages of Concern, Levels of Use, configurations, interventions, other factors, and their interactions into a useful model that practitioners and researchers can apply.

Following initial verification of Stages of Concern and Levels of Use, the program research shifted to a focus on how the innovation is changed as it is being implemented (FY 76). It was found that innovations clearly are adapted and mutated during most implementation efforts. The concept of Innovation Configurations (Hall & Loucks, 1978) was recently developed as one way of viewing what happens to the innovation and attempting to measure the different forms that an innovation can exhibit. Current and future research, as outlined in the program's 3-5 Year Plan, focus on five major research objectives (see Figure 1, Part C).

Previously defined dimensions SoC, LoU, and Innovation Configurations describe the state of the change process with respect to both the individuals and the innovation. Thus, these dimensions are diagnostic. After diagnoses have been made, the next step suggested by the CBAM is to determine the form and nature of appropriate interventions for the facilitation of the change process. To this end, the PAEI program is developing a taxonomy of interventions that will later assist in the identification of intervention effects. In addition, studies will explore how both the context and the unit managers (e.g., principal, dean, department chairperson) impact the individual's Stage of Concern, Level of Use, and the Configuration of the Innovation during change efforts.

Additional 3-5 year objectives (Figure 1) allow for useful applications of the basic research of the PAEI program. Staff will develop training packages and other materials and procedures for sharing information with practicing change facilitators. PAEI researchers will then examine how those facilitators apply that knowledge in change efforts.

There are also a number of other issues confronting PAEI research beyond simply the verification of the CBAM and its practical utility. Briefly, these issues involve the ethics of intervention and of conducting research on the

management of change.

Methodologies

Several methodological approaches have been employed in the research of the PAEI program. Initial verification of the "concerns" and "use" dimensions of the CBAM involved quantitative methodologies utilizing psychometrically rigorous measurement tools. For the more recent intervention research qualitative methodologies have been emphasized. Full-time ethnographers have been placed in field sites to document the use of interventions and to describe their contexts. These rich, qualitative data are now being processed via the development or adaptation of more quantitative analysis procedures.

The project staffing pattern is of an interdisciplinary composition which adds different perspectives to the research. Staff include counseling psychologists, educational psychologists, teacher educators, research methodologists, and persons trained in the natural sciences. The interdisciplinary composition of the staff makes it possible to approach the design of studies, the analyses of data, and the presentation of findings from different perspectives and to draw upon the diverse resources available across disciplines for social science research.

Problems Confronting PAEI Research

Some problems confronting PAEI research are associated with the general challenges and frustrations common to any research activity. Others, however, are related directly to the focus of the research; e.g., the meager and inconsistent theory and knowledge base, and the complexities of the change process. A few of these problems are discussed below.

1. There are conflicting demands between dissemination of past research results and the advancement of present research activities. The PAEI program

is in the fortunate and gratifying position of generating much public interest. Many policy people, researchers and evaluators, and practicing change facilitators are highly interested in learning about and using the tools and findings of past research. There is strong interest among these professionals in using Stages of Concern and Levels of Use (1) as diagnostic tools, (2) as key criterion measures in formative and summative evaluation studies, and (3) to influence the evaluation of past policy and the development of future policy. PAEI staff are gratified to spend time servicing requests from these various constituencies. Concurrently, however, present and planned research is being hindered and delayed. Program staff do not wish to ignore their responsibility to share research findings and tools but, at the same time, there are conflicting demands upon time and program resources.

One solution might be to entrust dissemination functions to others. This notion, however, generates the concern that the validity of the information might decline and that possible abuse of the concepts and procedures might damage the program and its future research potential. The solution to this dilemma is not clear. An attempt is presently being made to establish regionally-based CBAM Resource Centers, to which inquiries pertaining to past work can be referred. Thus, PAEI program staff time can be reserved for working with field sites and problem situations that require knowledge of more recent program efforts. It is hoped that through this functional division, present interest in CBAM can be supported and at the same time, PAEI research can move ahead.

2. <u>There appears to be a shortage of field sites with the capability of understanding, planning, and managing the complex change process</u>. There are many individuals concerned about managing change in more knowledgeable ways, who recognize that the teachers and others involved in adopting innovations require continual support. However, for the most part, there are few educational

institutions and systems that have policies and practices which recognize these realities. Change by proclamation, and inservice by abrupt "hit-and-run" workshops are the norm. Thus, field sites with advanced stages of implementation or change facilitators who plan ahead rarely exist. Finding sites to conduct longitudinal research from dissemination to refinement is difficult. Those sites that do exist are, truly, exciting places.

3. The PAEI staff is experiencing frustration over the length of time necessary for development of a high quality taxonomy of interventions. Analyzing actual and potential interventions for the facilitation of change has been undertaken by other researchers, with limited success. The PAEI program might be able to quickly construct a taxonomy of interventions, satisfy contractual agreement with the funding agency, and present the results to the world as some profound announcement. However, the ultimate objective of the research is to develop a taxonomy that will be (a) useful to future research proposed by both the PAEI program and others, and (b) relevant and useful for practicing change facilitators in school and college settings. At this point in the project, the development of this taxonomy, the clarification of concepts and definitions, and the explanation of the relationship of interventions to other aspects of the Concerns-Based Adoption Model are time- and energy-consuming.

4. Processing qualitative data is difficult and costly. At the present time, the use of qualitative methodologies is very popular. However, researchers who employ them are often unprepared for the realities encountered. Collecting qualitative data is more costly than collecting quantitative data, and the resultant complex, "rich" descriptive narrative is very difficult to reduce and interpret meaningfully (Hall, 1978). Few consumers will read a six-hundred page case study. Unless the concepts derived from qualitative material are reduced into manageable components, they are of no use whatsoever to practitioners. It has been a major challenge to our staff to make the best and at the same time

the most efficient use of the massive amount of qualitative data we have for our field sites.

5. There are many satisfactions from research on change. Conducting research on the change process is not always fraught with problems. PAEI researchers have experienced moments of great satisfaction, both personally and professionally, as individuals and as a team. Satisfaction wells from a variety of sources: a factor analysis on a concerns questionnaire generating the number of factors with content as hypothesized; a new insight into the change process making clarity out of confusion; colleagues expressing strong interest in research results; practitioners applying research findings to solve problems, and finding that they work. Satisfactions such as these renew the desire to continue the pursuit.

It might be noted that not only do PAEI staff experience both feelings of satisfaction and frustration, but also these feelings are shared by colleagues in the field sites and program officers at NIE. Program officers, particularly, have been concerned, involved and supportive.

Issues Raised by PAEI Research

With a four year history of research activities, the PAEI program has been able to develop some new insights into the change process, as well as to initially verify key dimensions of the Concerns-Based Adoption Model. Some of these insights, with suggested implications, are listed below.

1. Change must be viewed as a process. Fortunately, educational decision-makers are beginning to realize that change is a process rather than an event. PAEI research, in combination with that of others, clearly document the beginning phases of this process. The passage of a law, a two-day workshop, an educational proclamation, do not accomplish a desired change instantaneously. "Change" takes

time and requires resources, support, and attention to its complexities during that time. The sooner policy-makers, researchers, evaluators and managers of the change process adjust their implementation plans accordingly, the better off will be teachers and other users of innovations and their ultimate clients, the students.

2. Most evaluation studies have been missing a key variable, that of implementation. As PAEI research has clearly documented (Hall & Loucks, 1977), evaluators of educational innovations cannot assume the existence of "use" (in treatment schools) and "nonuse" of an innovation (in comparison schools) in the typical research design. Use or nonuse of the innovation must be verified by direct assessment. Failure to do so may result in finding no statistical differences between treatment settings and thus may indict unfairly an innovation or change effort.

3. Change research and management of the change process must take into account the individual, as well as institutional variables. The Concerns-Based Adoption Model and research in the PAEI program has clearly documented the importance of understanding concerns of individuals and their use of innovations as they are involved in change. The research does not, however, discount the importance of organizational variables. It is hoped that in the next several years, PAEI research on the individual can be combined with the established tracks of organizational research, so a more systemic view and understanding of the process as it unfolds in educational institutions can be developed.

4. What is "the" innovation? If researchers are to study innovation implementation, there must be a concrete operational definition of the observable behaviors that constitute "implementation." Restated, developers must describe the essential components of the innovation necessary to satisfy the criteria of "use," (Hall & Loucks, 1978). It has been found that users are likely to adapt

innovations in various ways, resulting in different "configurations" or forms of the innovation. To what extent can different configurations be allowed or encouraged? How does the notion of "mutual adaptation" as proposed by Berman and McLaughlin (1975) impact on the original validation of the innovation? If use is varied, are initial outcomes still expected? What are the limits of developer liability? These questions are all to be faced by researchers, evaluators, and facilitators of the change process.

5. Research is not keeping abreast of practice. Research has not offered practicing change facilitators very much in the way of practical tools to assist them in their change efforts. As a result, they are anxious to use unvalidated research tools and tentative findings because there are no other resources. If applied prematurely, these tools and findings may be used inappropriately. Caution needs to be taken when applying research findings in different settings. At the same time, a goal of research must be to provide change facilitators with the practical tools desperately needed.

6. The ethics of intervention. In any area requiring the facilitation of change, such as teaching, administration, and organizational management, change facilitators are involved in "manipulation." "Manipulation" is not a word with pleasant connotations. However, just as "manipulation" occurs when any product is "sold" to consumers, "manipulation" is basically what any facilitator is undertaking when he or she fosters change. There is a serious need for an examination of ethical issues in relation to the change process and to conducting research on change. When should change be initiated? Who is responsible for change? What are appropriate interventions? What are the limits on the use of interventions? How should change research be conducted?

As a first step towards examination of these issues, the PAEI program staff are commissioning the development of several review papers and, subsequently,

development of a position statement related to the ethics of intervention research. These papers will initially be presented in a seminar for PAEI staff, but they may also be used as a stimulus for further examination by others concerned with this issue. Hopefully, a timely examination of the ethical questions associated with "intervention" can prevent serious misuses and abuses.

Conclusions

This paper has been a cursory overview of the theory, findings, and issues confronting the PAEI research program. The reader is invited to examine further more detailed papers on our research. Hopefully, we have stimulated interest in, examination of, and input about the issues raised.

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RESEARCH ON THE IMPLEMENTATION OF INDIVIDUALIZED SCHOOLING

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Background

At the Wisconsin Research and Development Center we have been studying the growth and development of Individually Guided Education (IGE) for the past ten years. Through our contact with the implementation of IGE, we have acquired a generalized interest in the process of adopting and implementing educational innovations. A review of the literature related to planned change has revealed that although some things are known about how and where innovations have been adopted, comparatively little is known about how they are implemented and for what reasons they are continued. The research described here proposes to study the process from the point of non-use to that of renewal or rejection.

Essentially, the proposed research is a three-year longitudinal field study of ten elementary schools which have been involved for different periods of time in implementing the organizational innovation IGE and the curricular innovations called the Wisconsin Reading Design or Developing Mathematical Processes (DMP).

The research team includes faculty associates from the Department of Educational Administration, implementation staff members, and personnel from two other Center projects--the Wisconsin Reading Design and DMP.

"The State-of-the-Art"

Although numerous books, articles, and studies have been written about planned educational change, the amount of knowledge to be derived from these works is significantly less than one might expect for the effort expended. In brief, the following criticisms can be leveled against the body of change literature so far assembled:

1. Most studies have focused exclusively upon the early phase(s) of the change process (i.e., adoption) and have neglected the later phases (i.e., implementation, adaptation, renewal, etc.).

2. The design of most studies has been cross-sectional rather than longitudinal, despite the intrinsically dynamic nature of the phenomena being studied.

3. Most studies have been restricted to the direct user-system thereby assuring a closed-system analysis of a problem most frequently described as being widely open to influences from the external environment.

4. The emphasis of studies has been predominantly toward precipitating change rather than studying it.

5. Most studies have been primarily retrospective and their primary sources of data have been "after-the-fact" perceptions of users.

With a few notable exceptions, the obviously complex and dynamic process of innovation adoption has been portrayed as being uncomplicated and static. To a large extent, the results have been preordained by the methodology which has been used.

Approach

In designing this research project, we have attempted to overcome what we feel are the limitations of a number of other change studies. To avoid the problem of predetermined results, we have chosen a varied and open-ended methodological stance. Both field study and quantitative methods will be used to gain insight into the dynamics of planned educational change.

Research Questions

The study is focusing on four research questions:

1. What factors affect the decision to adopt an innovation?

2. What factors affect the rate of implementation of an innovation (i.e., level of use of an innovation)?

3. What factors affect the adaptation of an innovation?

4. What factors affect the decision to abandon an innovation?

Site Selection

To ease comparability across sites and to conserve resources, the ten research sites are all Wisconsin schools. Wisconsin has an active IGE network and contains several schools already making use of IGE, the Wisconsin Design, and DMP. The sampling plan used to select the sites was a mixture of both purposive and stratified random sampling. To increase the probability that all phases of the implementation process will be witnessed during the course of the study, all Wisconsin IGE elementary schools were grouped into three "age-related" categories: schools that have been implementing

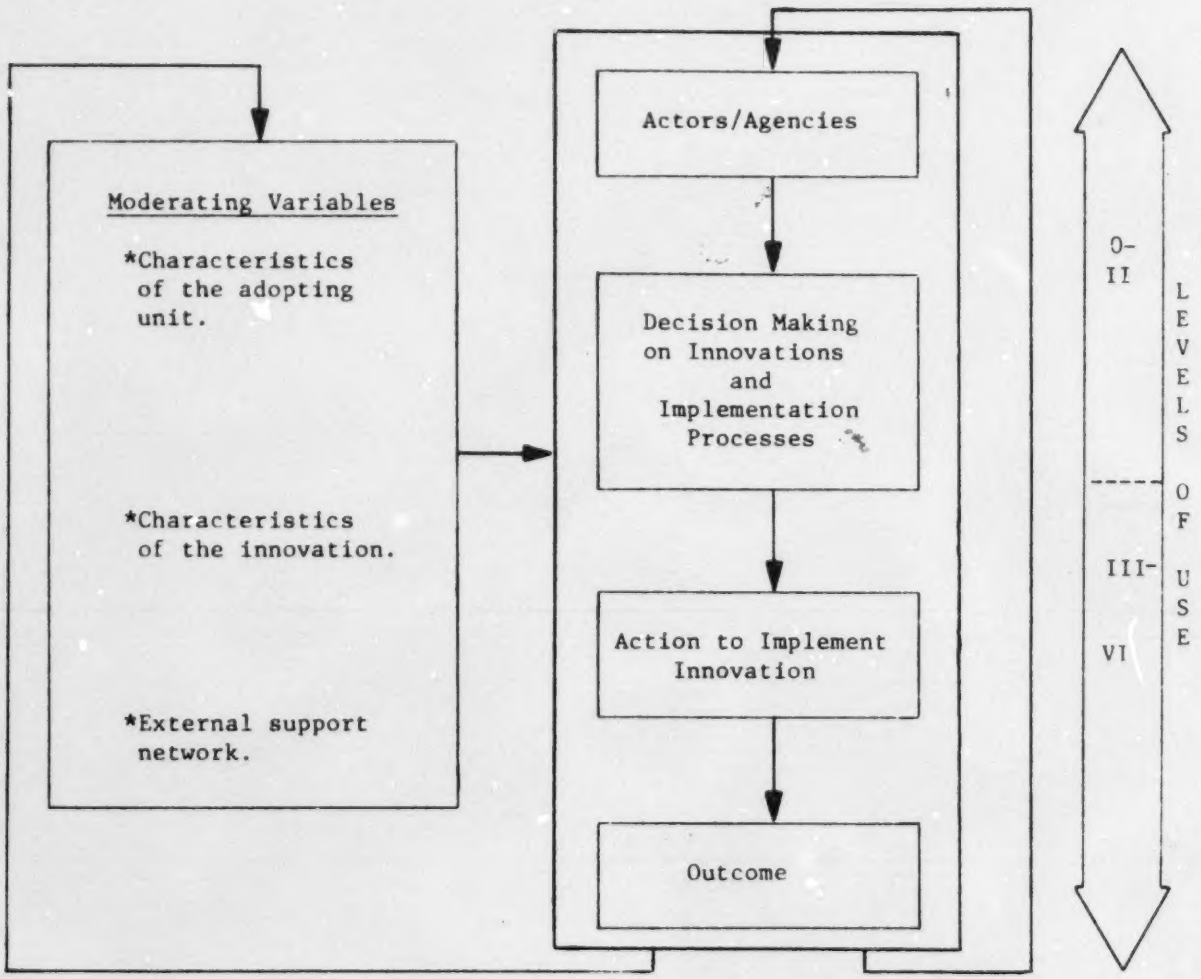
IGE for (a) one to three years, (b) four to six years, and (c) more than six years. To isolate the effects of the urban environment, IGE schools from the Milwaukee Public School System, the only indisputably urban area in Wisconsin, were stratified separately. Within the "age-related" stratifications, schools were further classified by their use or non-use of the two curricular products produced by the R & D Center. One school was then randomly selected from each strata. In addition, one school just beginning to implement IGE has been included in the sample.

The sampling procedure was designed so that a variety of influences and effects on planned change can be examined in at least one site. The effects of the curricular products upon the IGE innovation will be explored, and vice versa. The effects of the curricular products on each other will be isolated. And, differential impacts between urban and non-urban sites will be explored.

The Conceptual Model

A tentative model of the innovation process is providing direction in the initial stages of data collection. This provisional model, illustrated in Figure 1, seeks to describe the innovation adoption process by indicating the important factors affecting innovation adoption and demonstrating the relationships between the factors. As we collect data, we expect to identify new influences and/or relationships and anticipate that we will alter the model accordingly. The heart of the innovation adoption process is represented by the four vertical boxes in the center of Figure 1. On the basis of their knowledge, perceptions and behavioral desires, actors/agencies select innovations and processes necessary to implement the innovation. As these processes are put into action they result in outcomes. Feedback information regarding the outcomes is perceived by the actors and affects their future decisions and actions. At the same time, several variables moderate the decisions, actions, and outcomes of the innovative process. Among the more obvious moderating variables are the characteristics of the adopting unit, the characteristics of the innovation, and the external support network. Perceptions of the outcomes may also feedback information which influences

Figure 1



the moderating variables. At the same time, the innovation adoption process is not a bipolar use/non-use phenomenon (Hall, Loucks). Rather, there are different "levels of use" of an innovation. Quite obviously, this view--that the innovative process consists of discrete and temporally-linked stages--has dramatic consequence on the conceptualization and research of planned change. It seems likely that the relationships between actors, decisions, action, and outcomes, and the effects of the innova-

tion itself, the adopting unit, and the external support system would change as a function of the level of use. Moreover, it would seem likely that movements through the levels of use are not independent events, but highly interactive. By adding levels of use to the diagram, the innovative process is now seen as complex and dynamic, not simple or linear.

Research Design

This research will attempt to determine and interrelate those factors (e.g., events, actors, attitudes) which precipitate (a) the adaptation of an innovation and (b) the dynamic movement through the levels of use of an innovation.

Adaptations of the original innovation will be recorded and data will be collected to explain the reasons for these adaptations. Similarly, records will be kept as each school moves through the phases of the level-of-use scale. This information will be juxtaposed with events transpiring in the school, including the perceptions of users. Although certain quantitative measures will be used, the initial and most important data will come from direct observation of potentially significant events (e.g., meetings of the instructional improvement committee, conferences with external agents, and others).

Research team members will visit each site on a regular basis throughout the duration of the project. When the project is completed, data from the ten sites will be analyzed to formulate a generic model of the implementation process of planned educational change.

Problems

Since this research is in its initial stages, the problems encountered by the Implementation Research group have been largely of a methodological nature. Problems working in the field have not arisen, because we have yet to begin collecting data. Gaining clearance to conduct research in ten schools has posed no major problems, however. Similarly, because of the early stage of our research, we have not encountered difficulties in disseminating results. We anticipate, however, that producing a

readable, comprehensive, and acceptable report which combines both qualitative and quantitative data may prove problematic.

Methodological Problems

> The choice of research tactics follows not from research doctrine, but from decisions in each case as to the best available technique; the problem defines the method used, not vice versa (Parlett and Hamilton, 1972, p. 16).

The first methodological problem we faced was related to the nature of our research question. Although the dynamic and complex nature of the innovation adoption process is widely recognized in the research literature, few change studies have taken account of this essential dynamism and complexity. In fact, most studies of planned change have been cross-sectional or retrospective and have assumed that the innovation adoption process was static. Thus, the chnage literature was not especially helpful in suggesting an appropriate methodology for studying the innovation adoption process.

The word innovation has many meanings. Central to all these meanings, however, is one common element--the basic notion of change. Though an innovation may take many forms--experimental materials, different organizational structures, new approaches, or a combination of these--it must represent a departure from the established practice of the group adopting it.

At the same time, innovation adoption is not an immediate process. Adopters do not move from a condition of non-use to use over night. The adoption process is gradual and occurs over time. Considering, then, the dynamic nature of an innovation and the gradual nature of the adoption process, the methodological problem is simply stated: How does one study a process which changes and evolves over time?

We resolved this problem by selecting field study techniques as our predominant research strategy. We adopted field study methodology because we felt it is particularly suited to the nature of our research question--that is, it does not artifically constrain the complex and dynamic nature of the innovation process. As an open-ended methodological stance, it does not require that all variables be specified in advance.

It permits the discovery of influences--both inside and outside of the innovation--which may affect the outcome of the innovation adoption process.

At the same time, field study allows for data collection over an extended period of time. It permits the viewpoint that innovation adoption is an unfolding process. It recognizes that the process does not have just a beginning and an end, but that it has an evolving middle part which may be crucial to understanding the final outcome. By employing a variety of field study techniques--direct and indirect observation, respondent interviewing, and direct participation--we hope to collect data on this crucial "middle part" in an effort to understand the dynamics of planned educational change.

Having resolved that field study methodology was particularly suited to our research question, we immediately encountered a practical problem. We recognized that since most members of our research group had been trained primarily in the more conventional quantitative methodologies,to a certain extent, we lacked the requisite skills to complete this project. Three solutions to this problem seemed possible: (1) existing members of the group could learn field study methods quickly and conduct the research themselves; (2) the focus of the study could be modified to allow for use of strategies already well-known to the group; or (3) an additional person who was already trained in field study techniques could be added to the research group. The first two solutions were not seen as efficacious. It was felt that the pressures of time and other professional activities would prevent members of the research group from being able to develop the required expertise to carry out the research in the immediate future. Modifying the focus of the study was seen as undesirable too. The research group did not wish to produce another study of change which failed to account for its complex and dynamic nature. The problem of field study expertise was resolved by adding an ethnographer to the research group, whose responsibility would be to guide the qualitative part of the study.

A final methodological consideration evolved from the search of the change literature. In addition to signaling a departure from established practice, innovation has come to take on the additional characteristic of being pre-planned. A haphazard phenomenon is not considered an innovation. As identified by Fullan and Pomfret (1977), the study of the implementation of a planned change (i.e., an innovation) has followed two main orientations:

> In the predominant orientation the main intent is to determine the degree of implementation of an innovation in terms of the extent to which actual use of the innovation corresponds to intended or planned use. This is sometimes referred to as the fidelity of implementation. The other main orientation found in some studies as directed at analyzing the complexities of the change process vis-a-vis how innovations become developed/changed, etc., during the process of implementation. This might be called mutual adaptation as it has been in the Rand studies (Berman & Pauly, 1975) (Fullan & Pomfret, 1977, p. 340).

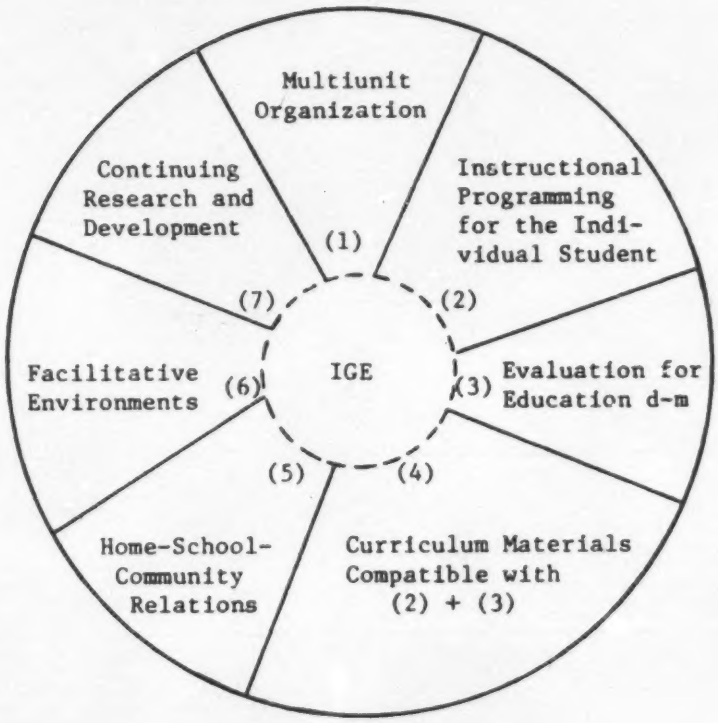
The research group had to consider whether to focus on the fidelity of implementation or its adaptations. Instead of looking at an either/or approach, we resolved that attempts would be made to consider both. Since the characteristics of the innovations (IGE, the Wisconsin Design, and DMP) have been detailed at great length by their developers at the Wisconsin R & D Center, comparison between existing practices and the idealized forms of the innovations should be possible. Further, since intensive observations and interviews will be made at several sites, information about the nature of adaptations and the reasons for their alterations can also be documented.

Design Problems

Once the methodological problems were resolved, the next concern was defining the essential components of the IGE innovation. Individually Guided Education consists of a complex system of seven components. These seven components are shown in Figure 2.

In order to be able to determine use or non-use of the innovation, we had to identify the essence of IGE as an innovation. After much discussion, we decided that use of IGE would not require evidence of performance in all seven areas. Collecting data on all seven components, we felt, would be a monumental task. Rather we decided

Figure 2



that the essence of IGE as an innovation lies in its instructional programming for the individual student. This instructional programming process is spelled out in the Instructional Programming Model (IPM). Both the Wisconsin Design and DMP are curricular expressions of the IPM. It was felt that all IGE users (whether or not they were implementing the Wisconsin Design or DMP) had expressed the intent of undertaking the IPM.

We then defined the essential criteria of the IPM. They are: (1) the setting of objectives, (2) pre-assessment of these objectives, (3) differentiated instruction based upon pre-assessment, (4) post-assessment of the objectives, and (5) progress dependent of post-assessment results. We concluded that users of the IPM, and hence users of IGE, would demonstrate use, at some level, of these five essential criteria. Having simplified the complex IGE concept, we made it possible to systematically study the innovation.

Our next problem was to determine the appropriate unit of analysis. We had to identify the smallest integral part of a school which could implement the IPM, the essence of IGE. We decided that the appropriate unit of analysis would be the Instructional and Research Unit which consists of 3-5 teachers, one of whom is designated as the unit leader. We recognized that the adoption of this unit of analysis would not preclude collecting data at either a lesser or greater level of aggregation, but that it would affect their interpretation.

The three design concerns--identifying the essential elements of the IGE innovation, defining these elements, and determining the appropriate unit for analysis--were not overwhelming problems but they did require considerable thought and discussion. In the end, we felt that having faced these problems we understood our research question far better.

Issues

At this point in time, we are keenly aware of three ethical issues related to our research. One issue plagues almost all researchers in schools; the other two are specifically related to or at least heightened by the use of field study methodology. We have not yet resolved any of the three issues and they remain moral dilemmas for us.

In almost all cases, researchers in schools impose upon the scarce time and energies of already overworked teachers and administrators. In exchange for their insights and cooperation, a researcher might like to provide the subjects something of value in exchange for their services. But, ethically, what can be offered? Is sharing the findings of the study enough (especially when the study is to last for over three years)? Is knowledge of participation in a study which may improve schools sufficient? What is just compensation for research participation? What kind of renumeration can show sincere appreciation without making subjects "too cooperative?"

Another ethical concern which plagues those who undertake field studies is the protection of informants. Frequently informants will provide information to ethno-

graphers which, if revealed, could cause harm to the informant. In reporting field study data, ethnographers must be mindful of the possible repercussions of information disclosure for their informants. At the same time, this "harmful" information may be critical to the interpretation of the event under study. Thus, the researcher faces a moral dilemma: should information be withheld to protect individuals (at the cost of distorting the interpretation) or should all information be reported and the rich interpretation made (to the personal cost of certain individuals). Hopefully, a reasonable middle-ground lay somewhere between these two extremes.

Researchers using field study techniques may encounter yet another ethical problem. As observers to a wide variety of activities, they may gain knowledge which, if shared, could alter the outcome of the event under study. In some cases, sharing that information may even prevent major errors or failures by certain individuals. In such instances, the ethnographer faces a difficult decision: should information be shared and failures avoided at the cost of contaminating the research or, should the researcher remain silent and allow the situation to develop as though an observer were not present? Decisions about sharing information or remaining silent, in some studies, may be a major ethical concern, especially if permanent personal or professional damage is viewed as a likely outcome.

The resolution of these ethical problems is not easy. Yet, researchers have a moral obligation to consider the possible repercussions of their research and to make decisions which they believe are morally defensible.

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